DOCUMENT RESUME

ED 182 887 EC 122 934

AUTHOR	Litch, Sarah: Moos, Jan Lee
TITLE	Towards the Prevention of Mental Retardation in the Next Generation. Volume II: The Growing Child.
INSTITUTION	East Allen County Schools, New Haven, Ind.
SPONS AGENCY	Indiana State Office of Education, Springfield. Dept. of Innovative Education.: Office of Education (DHEW), Washington, D.C.
PUB DATE	79
NOTE	863p.: A Parenting Education Curriculum: Course of Study-Resource Manual for Junior and Senior High School Students: Print is small and variable on some pages: For related information, see EC 122 933
AVAILABLE FROM	East Allen County Schools, 1240 U.S. 30 East, New Haven, IN 46774 ($12.00)
EDRS PRICE	MF03/PC35 Plus Postage.
DESCRIPTORS	Check Lists: Curriculum Guides: *Family Life Education: Instructional Materials: *Lesson Plans: *Mental Retardation: *Parenthood Education; Parent Role: *Prevention: Resource Guides: Secondary Education: Sex Education: Student Attitudes: Teaching Guides

ABSTRACT

Intended for teachers of junior and senior high school students, the document outlines a course on the prevention of mental retardation through education of future parents. Introductory matter suggests that the course be given in 15 lessons. Content of the curriculum focuses on the role of the growing child's mother and father as dietitian, doctor, household manager, teacher, psychologist, and lawyer. Included for each lesson is information on the following: objectives, a pretest to test the knowledge and attitudes of students before the lesson, background information for the teacher, an outline of the mini-lecture presentation for the students, classroom experience options, outside classroom experience options, an action checklist, a posttest, and selected references. Masters for dittos and transparancies and lists of community and state agencies, government agencies, audiovisuals, and directories are also given. (SBH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED182887

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Sarah Litch
Jan Lee Moss
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ONE OF THE MOST IMPORTANT JOBS OF EACH GENERATION IS TO LOVE, NOURISH, PROTECT, CARE FOR AND TEACH THE NEXT

EC122934

TOWARDS ⇨ THE PREVENTION
OF
MENTAL RETARDATION
IN
THE NEXT GENERATION

VOLUME II THE GROWING CHILD

A PARENTING EDUCATION CURRICULUM: COURSE OF STUDY-RESOURCE MANUAL
for Junior and Senior High School Students

© copyright 1979 East Allen County Schools
Printed by *Ft. Wayne Printing Company*

FOREWORD

Productive human resources will continue to be one of America's greatest assets. Toward this end the educational system of this country must undertake a program to educate future generations about the causes and prevention of mental retardation as one means of human resource development.

This curriculum guide Towards The Prevention of Mental Retardation in The Next Generation provides an easily integrated method to assure that "soon-to-be" parents understand the causes, can prevent mental retardation and cope with its related problems in future offspring.

The schools of America have a commitment to the development of the total child thus a program fostering greater understanding of prevention becomes as essential as the 3 R's.

A greater awareness of the causes of mental retardation among today's youth will make a substantial contribution to the future conservation of human resources. I firmly support any program that can contribute to the happiness and well-being of the future generation. I happen to believe that this program falls in that category.

Richard D. Miller,
Superintendent
Elkhart Community Schools
Elkhart, Indiana

It has been a privilege for me to participate in this exciting project. Prevention of mental retardation has long been one of my personal goals, beginning in 1952 with the birth of our second daughter, who is profoundly retarded.

Since the early 1950's, our Associations for Retarded Citizens have been working for laws and regulations to ensure every handicapped child the right to appropriate educational and training opportunities. During this time we have seen tremendous growth in quality programs and services for the mentally retarded of all ages and functioning levels in our public schools, communities, and institutions. It is now time to turn our attention to an even greater challenge; that of preventing mental retardation from occurring.

In 1971, a national goal was established to reduce the occurrence of mental retardation by 50 percent before the end of the century. The techniques and knowledge are already available to achieve this goal. This then presents an enormous challenge to each and everyone of us to do whatever we can to ensure that every child born is born well and has a chance for a good start in life.

This curriculum offers you, as an educator, an opportunity to participate in a national movement to reduce the occurrence of mental retardation; a challenge to educate "soon-to-be" parents on the causes of mental retardation and associated preventive measures; and a valuable resource toward teaching prevention of mental retardation in the growing child.

Ilene Younger
Assistant Director-
Public Affairs
Indiana Association for
Retarded Citizens

DEVELOPED: pursuant to a grant from:

The United States Office of Education, Department of Health, Education and Welfare.

The Indiana Department of Public Instruction, Department of Innovative Education, Title IV-C. Donald Treibic, Director. Barbara Erwin, Project Supervisor.

The work reported herein was performed pursuant to a grant from the United States Office of Education, Department of Health, Education and Welfare and the Indiana Department of Public Instruction. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education or the Indiana Department of Public Instruction and no official endorsement by either should be inferred.

DEVELOPED AND WRITTEN BY:

Sarah Litch
1608 Reckeweg Road
Ft. Wayne, Indiana 46804
(219) 432-2354

and

Jan Lee Moos
St. Francis College
2701 Spring Street
Ft. Wayne, Indiana 46804
(219) 432-6780

MANUSCRIPT PREPARED BY: Joan Hoffman

ARTWORK BY: Annette Bracht

ADVISORY BOARD:

Dr. Jeffrey Alexander
Chief of Pediatrics, Riley Child Development Center

Dr. Donald Dian
Kaylor-Nickel Clinic

Dr. John Hagen
Northern Indiana Health Systems Agency

Mary Hamilton
Indiana State Board of Health, Consultant Nurse

Mervin Helmuth
Head of Pediatric Nursing, Goshen College

Dr. Harland Hippensteel
General Practitioner

Dr. Jane M. Irmscher
Health Commissioner, Ft. Wayne-Allen County Board of Health

Shirley Jones
Future Homemakers of America

Katie Komasinski
Health Systems Agency

Phyllis Lewis, R.N.
Health Services Consultant

Willard Mays
Program Coordinator

Juanita Mendenhall
Home Economist: Parenting Education

Dr. Wayne Payne
Department of Physiology and Health Science
Ball State University

Dr. David H. Porter
Pediatrics

Bob Robertson
Special Education Consultant

Dr. Warren Schaller
Department of Physiology and Health Science
Ball State University

Dr. Charles Seevers
Association for the Disabled of Elkhart County

Dr. Tom Stafford
Obstetrics and Gynecology

Dr. Phillip Tyndall
Obstetrics and Gynecology

Jerry Wagner
Division of Special Education,
Department of Public Instruction

Linda Weiland
Health Educator, Indiana State Board of Health

Carlotta Williams
Council for Exceptional Children

Dee Woods
First Vice-President of
Indiana Parent-Teacher Association

Dr. Roland Young
Director of Curriculum, East Allen County Schools

Ilene Younger
Indiana Association for Retarded Citizens

Dr. William Yarber
Department of Health and Physiology
Purdue University

TABLE OF CONTENTS

Page

FOREWORD 1

ADVISORY BOARD 2

TABLE OF CONTENTS 4

LIST OF FIGURES 5

INTRODUCTION TO THE COURSE OF STUDY 8

WHY PREVENTION? 8
HOW TO USE THIS COURSE OF STUDY-RESOURCE MANUAL 10
HOW TO MAKE DITTOS AND TRANSPARENCIES 13
MASTER RESOURCE LISTS 14

I. THE MOTHER AND FATHER OF THE GROWING CHILD IN THEIR ROLE AS *DIETITIAN* 23

Their *RESPONSIBILITY*
in The Prevention of Mental Retardation
In The *NEXT* Generation

II. THE MOTHER AND FATHER OF THE GROWING CHILD IN THEIR ROLE AS *DOCTOR* 111

Their *RESPONSIBILITY*
in The Prevention of Mental Retardation
In The *NEXT* Generation

III. THE MOTHER AND FATHER OF THE GROWING CHILD IN THEIR ROLE AS *HOUSEHOLD MANAGER* 183

Their *RESPONSIBILITY*
in The Prevention of Mental Retardation
In The *NEXT* Generation

IV. THE MOTHER AND FATHER OF THE GROWING CHILD IN THEIR ROLE AS *TEACHER* 303

Their *RESPONSIBILITY*
in The Prevention of Mental Retardation
In The *NEXT* Generation

Page

V. THE MOTHER AND FATHER OF THE GROWING CHILD IN THEIR ROLE AS *PSYCHOLOGIST* 391

Their *RESPONSIBILITY*
in The Prevention of Mental Retardation
In The *NEXT* Generation

VI. THE MOTHER AND FATHER OF THE GROWING CHILD IN THEIR ROLE AS *LAWYER* 473

Their *RESPONSIBILITY*
in The Prevention of Mental Retardation
In The *NEXT* Generation

LIST OF FIGURES

Number		Page
1.	Nutrition Gradient Effecting Mental Development.	26
2.	Major Nutrients, Their Function, Sources and Resulting Deficiencies in Relation to Mental Development.	29
3.	A New Experience - Solid Foods.	33
4.	Developmental Sequence of Eating Skills. (Average Levels)	34
5.	The Central Nervous System-Brain and Spinal Cord-With Its Four Protective Systems.	35
6.	Sections of The Brain Receiving Sensory Input for Processing.	36
7.	The Neural Cell of The Brain and Spinal Cord.	37
8.	Brain Growth Spurts.	37
9.	Network of Nerve Cells.	38
10.	The Cycle of Malnutrition or Hunger Which Often Condemns A Child to do Poorly in School.	42
11.	Examples of Drugs Which if Taken by Nursing Mother Enter The Breast Milk and Effect The Infant.	44
12.	An Allergic Reaction to a Food.	47
13.	Symptoms of an Allergic Reaction.	47
14.	Toxic Substances, Their Sources and How to Avoid Them in Food Preparation.	53
15.	Cross Section of Brain Showing Specific Landmarks.	114

List of Figures Continued

Number		Page
16.	The Ventricles Without Surrounding Nervous Tissue.	114
17.	The Ventricles in Relation to Cerebral Cortex.	114
18.	Cross Section Showing the Gray Matter.	114
19.	Lateral View of Cerebral Hemisphere-Showing Heiarchy of Motor Area.	114
20.	Cross Section of Spinal Cord.	115
21.	Illustration of Vertabral Column and Spinal Cord.	115
22.	Side View of Spinal Column-Showing How Nerve Roots Emerge from Spinal Cord.	116
23.	A Cell and Its Landmarks.	117
24.	Examples of Foods and Their Chemical Nutrients Needed by Cells.	117
25.	Representative Cell Types.	118
26.	Demonstrates Connecting Neuron Network.	118
27.	Schematic Representation of Metabolic Agents in Relation to Metabolic Processes.	120
28.	Endocrine Glands of The Body Which Must Function Well to Prevent Mental Retardation in The Growing Child.	121
29.	Endocrine Glands Vital to Normal Mental Development and Their Functions Which Are Vital to Mental Growth.	122
30.	Endocrine Disorders Which May Result In Mental Retardation Which Are Preventable by Treatment.	123
31.	What Goes Wrong in The Metabolism of Food When An Infant or Child Has An "Inborn Error of Metabolism."	126

List of Figures Continued

Number Page

32. Some Conditions Treatable (in part) By Supplementation of Diet for Deficiencies Occurring in Genetic Disease Resulting in Mental Retardation. 127

33. Conditions Responsive to Vitamin Supplementation Which Can Result in Mental Retardation. 128

34. A Scale Symbolically Representing The Delicate Balance of Calcium, Potassium, Magnesium and Sugar Needed by The Body to Function Normally. 128

35. Metabolism Disorders Which May Result in Mental Retardation Which is Preventable By Immediate Treatment. 129

36. Diagram on How The Microbes Gain Access to The Body. 132

37. Some Infectious Diseases That Can Result in Encephalitis and/or Meningitis. 133

38. Immunization Schedule. 135

39. Important Signs and Symptoms Requiring Prompt Action on A Parent's Part. 136

40. Variations in Head and Body Proportions of Newborn and Adult. 186

41. The Brain Damage Caused by Lack of Oxygen to The Brain From Four to Ten Minutes. 187

42. Possible Causes of The Reduction of Oxygen To The Brain and Injury To The Brain. 188

43. The Pie of Accident Prevention. 190

44. The Role of The Parent as Household Manager: "The Egg of Safety." 191

45. Safety by Age. 192

List of Figures Continued

Number Page

46. The Results of Child Abuse. 195

47. Hazards, Safety Features and Supervision and Use of Infant Equipment Summarized by The U.S. Consumer Product Safety Commission. 198

48. Restraint Systems Matched to The Weight and Age of The Child. 203

49. Car Seats Recommended by Action for Child Transportation Safety The American Academy of Pediatrics and Physicians for Automotive Safety. 204

50. Toys That Can Lead to Childhood Accidents Resulting in Brain Damage. 205

51. The Normal and Asthmatic Airway. 208

52. The Sources, Related Problems and Prevention of Lead Poisoning. 210

53. The Cell With Its Mitochondria, The Metabolic Center of The Cell. 213

54. The Possible Effects of Lead Poisoning. 214

55. The Wide Variety of Household Poisons Available to A Child. 216

56. Some of The Poisonous Plants Available to The Child in The House, Yard, Park, Field or Forest. 219

57. The Mechanism of Damage and The Effects of The Severe Abuse of Social Drugs on The Brain. 219

58. Common Food, Small Objects and Mechanical Offenders Related to Suffocation in Children. 220

59. The Pie of Causation. 306

60. The Breakdown of Causation Related to The Range of Mental Retardation. 307

List of Figures Continued

Number | Page
61. Contrasts Between The Severely/Profoundly Retarded and The Mildly Retarded. 307

62. The Division of Themes Common to The Defining of Intelligence Divided Into Input, Integration and Output. 308

63. Sensory Input, Reception, Integration and Output Process. 310

64. The Development of Educational Measurement... A Time Line. 311

65. Interaction Factors in The Cycle of Poverty. 316

66. Developmental Milestones From One Week to One Year. 321

67. Types of Hearing Impairment. 395

68. Types of Hearing Impairment by Location. 399

69. Annual Survey of Hearing-Impaired Children and Youth Office of Demographic Studies. 400

70. Genetic Syndromes That May Result in A Hearing Loss. 400

71. Some of The Processing Problems of Learning For Each Sense. 413

72. Cortex of Brain With Hiearchy of Cortical Function Labeled. 414

73. Requirements of Public Schools As Defined in Section 504 of The Rehabilitation Act of 1973. 475

INTRODUCTION TO THE COURSE OF STUDY

1. WHY PREVENTION EDUCATION FOR THE JUNIOR AND SENIOR HIGH SCHOOL STUDENTS?

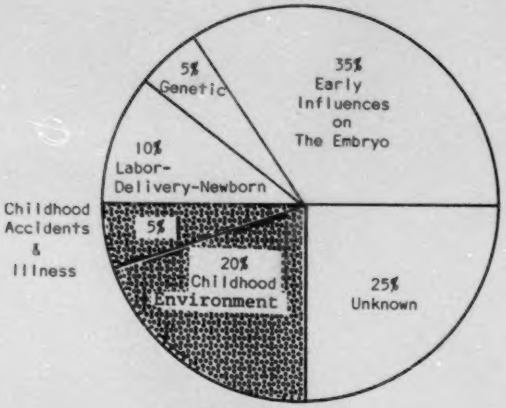
THE PROBLEM. The job of each generation is to raise the next. Each of us has a stake in the birth of each individual who will become a part of the family of man. The "new" human being will give and take not only from her or his parents but to and from society as a whole. Each person should have the right to as good a start in life as possible and to grow and develop in an environment that is nurturing to the intelligence and to the spirit. The parent of each new human being walks a very fine line for the growing child needs a balance of qualities and skills in her or his parents to allow for normal development. If any phase of development is neglected or distorted the quality of life of the new individual may be hampered. This is an awesome responsibility for parents but often it is held in "little awe" for the majority of parents have had little or no preparation for the raising of a member of the next generation. It is assumed that everyone knows how to "parent" and that its skills are something that come naturally. For a very small number of special people parenting may indeed be a "natural" skill but for most it is a complex, challenging and difficult task. Yet with a little help most people would be capable of being good or at least adequate parents.

Mental retardation which is a major humanistic, social and economic problem directly affecting 6 million citizens of the United States and indirectly many millions more is in part preventable. It is estimated that 1/2 to 3/4 of mental retardation is now preventable if we would communicate all the techniques of prevention presently known in the technological fields of science and social science to the "soon-to-be" parents, the junior and senior high school students of Indiana, in a way which would be motivating to them to do everything possible to prevent retardation in their child or children. Besides the saving of children from being "less than whole" and preventing grief and guilt in parents, prevention has vast possibilities of financial savings to Indiana. The cost of caring for one mentally retarded child per year (born at the rate of 60,000 per year) in an institution in Indiana is $18,000 a year in tax money or $1,260,000 for a life span of 70 years.

Teen-agers are bearing children in alarmingly greater numbers at a younger age each year producing 600,000 infants a year with 90% of these new human beings kept by the parent who is herself a child. In 80% of these births the infant will have no father except in its biological creation. The majority of these mothers who are just children themselves will not have rejected motherhood but embraced it as a symbol of their adulthood, their individualism, their capability of making something that is their own to love and to love them. But love is not enough for it must be manifested in skill which stems from knowledge to take the responsibility for the formation and molding of a new human being. The infant will not be all giving in its love but for many years be "all taking."

THE CHALLENGE. It is possible to systematically and comprehensively get information on prevention of mental retardation to junior and senior high school students. No other institution or group has access to most parents-to-be. The schools hold the potential to communicate the knowledge in prevention discovered in research, science and medicine to a majority of the population who are or will be the bearers and raisers of children either normal or mentally retarded. It is possible for the biology, advanced science, health, home economics, secondary special education teacher and the school nurse either individually or as a team effort to systematically educate "soon-to-be" parents as to what causes of mental retardation are now preventable and what responsibilities they must take as expectant or potential parents to lessen the probability that they will birth a handicapped child or retard a child in his or her intellectual development.

If the responsibility of the parents are taken before, during and immediately after birth as outlined in Volume I of Towards The Prevention of Mental Retardation in The Next Generation it is highly likely that the infant will come into the world intact, whole and healthy. But the struggle of an individual for independence, productivity, creativity and "wholeness" has just begun. The Pie of Causation reveals why.



There are over 250 causes of mental retardation. Approximately 25% of these causes of mental retardation are unknown although this part of the pie shrinks daily. Also the percentage of unknown causes is in reality not so large since many cases of mental retardation are not unknown as to cause but merely undiagnosed. The first volume of *Towards The Prevention of Mental Retardation in The Next Generation* dealt with the top half of the pie - early influences on the embryo, genetic factors and causes and prevention related to labor, delivery and care of the newborn. This volume deals with the bottom quarter of the pie - childhood accidents and illness and childhood environment. Childhood environmental factors are a major cause of mental retardation for the same influences that act on the embryo - poverty, hunger and poor health practices - also affect the growing child. To significantly reduce the incidence of mental retardation (3% of our population), mild retardation, the majority of which is caused by a deprived or distorted environment, must be prevented. Techniques in the prevention of childhood accidents and illnesses are quite specific but the techniques in the prevention of a deprived or distorted environment, while specific and theoretically preventable, are much more difficult to deal with particularly for an individual who is caught in the spirit of poverty.

ROLES TO BE PLAYED. To effectively prevent mental retardation in the growing child the future parent must carry out a number of roles...the role of dietitian, doctor, household manager, teacher, psychologist and lawyer. If any role is neglected or distorted the intelligence of the child may be physiologically affected or masked so that the child functions as a mentally retarded individual or is actually mentally retarded. The secret of developing the "whole" child is not to concentrate on one role while ignoring others but to balance the time and effort spent in *all* roles. To effectively play all roles to prevent mental retardation in the growing child takes skill and knowledge. As educators we must prepare *this* generation to raise the *next*. We can do more to prevent mental retardation. Let us begin the *first* step of the *many* steps of the next generation by educating those with whom the child will walk - in their many roles as parents - so that their future child or children can take their rightful place in the family of man.

2. HOW TO USE THIS COURSE OF STUDY - RESOURCE MANUAL

A. Options for Number of Class Sessions

Because Towards ⇨ The Prevention of Mental Retardation In The Next Generation is only one of the many areas of study you might be using as an educator a course of study suited to the number of class sessions you can use to teach prevention of mental retardation can be *put together* in a variety of ways. To *cover* the material it is suggested you allow fifteen class sessions. However, you may need to choose a total of ten, five or two class sessions or you may want to spend a half of a semester or a semester on the prevention of mental retardation. There are enough materials and experiences provided to extend the course of study to a semester but it is also possible to give basic prevention techniques in a factual way in several class sessions.

Examples of putting a course of study together to fit your time limitations:

FOR	DO
2 class sessions	Read the background material for the teacher in Units I through VI. Pass out the action checklists and go over the lists briefly hitting some high points in prevention.
5 class sessions	Read the teacher's background material for Units I through VI. Use the action checklists to distribute in class hitting some high points in prevention. Use several audio-visual aids.
10 class sessions	Use the format suggested in the mini-lecture or presentation. Use one and a half class sessions for each unit of study. Plan one outside classroom experience option.
15 class sessions	Use two and a half class sessions for each unit of study. Within several of the units plan an outside classroom experience option.
1/4 to 1/2 semester	Use the format suggested in the mini-lecture presentation. Use one or two audio visual aids suggested for each unit of study. Use at least one classroom and outside classroom experience option for each unit.

B. Code System

A simple code system is used throughout the curriculum guide to facilitate the understanding and organization of the course of study and for *putting together* each class session.

✎	Dittos and Transparencies
⬡	Community and State Agencies
⊛	Government Agencies
⊗	Audio-Visuals
❐	Directories
▭	Catalogues
▷	Objectives
▭	Background Information for The Teacher
⇨	Pre and Post Tests
△	Mini Lecture Presentation

☐ Classroom Experience Options

◎ Outside Classroom Experience Options

✓ Action Checklist

○ ○ ○ Bibliography

C. The Format of Each Class Session or Area of Study

▷ **Objectives**

Broad, general objectives are stated for each class session as well as a number of specific cognitive and affective objectives. It is important for the teacher to know in a general way where he or she is going and what specific bits of knowledge (cognitive objectives) are expected to be learned by the students as well as how you hope to affect (affective objectives) their values and attitudes.

☐ **Background Information for The Teacher**

Each of the seven areas of study contain background information for the teacher so that you will feel more confident in your presentation knowing that you have much more information available than you are actually presenting to the student. To educate the teacher as to the prevention of mental retardation the background materials also allow you to adapt the content of the class session to the level of your students. The background information may be useful as a resource in answering questions that students may ask. Teachers should not feel uncomfortable in saying that they do not know the answer to a question or that they will try to find the answer.

⇨ **Pretest**

A pretest is provided to test the knowledge and attitudes of the students before they are exposed to each area of study and its related experiences. The pretest technique is appealing to some teachers and the students know *what they don't know* and *where they are going*. One technique is to have the students take it at the beginning and end of class either in the classroom or as outside work and let them compare their own gains.

△ **Mini-Lecture Presentation for The Students**

The mini-lecture presentation for the student focuses in a straight forward approach on:

1. Information on known causes of mental retardation which are now preventable in the next generation
   and
2. What responsibilities must be taken in each *role* that the parents must play in raising their growing child:

   THE DIETITIAN
   THE DOCTOR
   THE HOUSEHOLD MANAGER
   THE TEACHER
   THE PSYCHOLOGIST
   THE LAWYER

   Each role is covered in one of the 6 areas of study. The mini-lecture presentations cover the cognitive objectives of the area of study. These presentations are best given in your own words and embellished and made personal and alive by your own experiences and examples.

☐ **Classroom Experience Options**

Options for classroom experiences are given in each area of study for you to choose one or more experiences that suit your style, tastes, ease of arrangement and your classroom students. It may be more effective if you use a classroom experience option before you present the mini-lecture presentation. The experience could make the factual information have more impact and be more meaningful. Experience may often be of more value than any amount of lecturing. A number of specific classroom experience options are given in each area of study from one or more of the following general techniques:

1. Speakers
2. Demonstrations
3. Small, large or two's discussion groups
4. Interviewing
5. Debate
6. Role Playing

7. Letter Writing
8. Surveys
9. Projects
10. Reports
11. Observations
12. Slides
13. Films
14. Filmstrip
15. Cassette Program
16. Pamphlets and Booklets
17. Curriculums which extend the area of study

Resource lists are provided in the introduction from which to order audio visuals and pamphlets and to choose speakers, people to interview and people to write. Audio visuals listed may be borrowed free of charge if no rental fee is listed. The catalogues listed contain many good resources that a teacher may want to consider for this course of study. In general resources were not used for this course of study unless they are available free of charge or could be rented. The catalogues contain resources which can be purchased.

⊡ Outside Classroom Experience Options

Options for experiences outside of the classroom are given in each area of study for you to choose one or more experiences that are suited to you and your students. According to your time plan you may want to:

1. Use a classroom experience for one area of study and an outside experience for another area, or
2. You may want to use one from both classroom and outside experiences, or
3. Use more than one classroom and outside experience.

Experiences outside the classroom are very important in effecting attitudes, values and action. Therefore, specific outside class experience options are given in each area of study from one or more of the following general techniques:

1. Field Trips
2. Interviewing
3. Small group and one to one interaction
4. Group and individual projects

✓ Action Checklist

The Action Checklist is a call to some kind of cognitive and affective commitment to the prevention of mental retardation in each phase of the student's life cycle. It is the core, the purpose of this course of study - to trigger action. The Action Checklist should be dittoed or reproduced and handed out and explained with the students at the end of each area of study. It would be good to ditto these checklists on colored ditto paper to call attention to its importance. It should also be suggested that the checklist may be something that the students may want to save for future reference as potential parents and for brothers and sisters, relatives and friends.

⇨ Post Test

The post test is provided to test the knowledge and attitudes of the students after they are exposed to each area of study and related experiences. The post test technique helps the teacher know how affective they have been in facilitating learning and helps the student know what they have learned and how their attitudes and values have changed about the prevention of mental retardation.

○○○ Bibliography

The resources used in researching and writing each unit of study are listed at the end of the unit.

D. Dittos and Transparencies

Masters to make the dittos and transparencies which are part of the mini-lecture presentation in each unit of study follow the post test in all of the units of study.

E. Master Resource Lists

Master Resource Lists of community and state agencies, government agencies, audio visuals and directories are given so that you may obtain speakers, pamphlets and audio visual material.

3. TWO FINAL SUGGESTIONS BEFORE YOU BEGIN

A. To form attitude development your students must:

- Personally feel and understand the seriousness of the possibility of mental retardation to his or her own potential children.

- Perceive that their possible children are susceptible to mental retardation.

- Perceive that they will reap benefits from the prevention of mental retardation in their potential child or children.

- Believe and understand that no coercive elements enter into a prevention program but that it is a choice through knowledge of alternative methods of the prevention of mental retardation.

- Feel that the methods of prevention are easily converted into action.

- Be positively and effectively influenced not in a preachy, moralistic or dogmatic way but in a factual,, positive and enthusiastic approach that gives them the possibility of controlling their future through their own choices at various times of their life cycle.

B. To Plan Your Course of Study

- Decide on the number of days for your course of study.

- Select the parts of each area of study to be included for that time selection.

- Select classroom and outside classroom experiences you wish to use and make the necessary preparations to carry them out.

- Make dittos of action checklists and any other visual material you wish to reproduce such as pre and post tests, tables, illustrations.

- Order audio-visual material.

- Order pamphlets.

Dittos and Transparencies

1. To make DITTO MASTERS:

A. Using a thermo-fax machine:
1. Place Tear Out page from this manual flat on tissue.
2. Place glossy purple sheet on top of tear out page.
3. Place white paper on top of glossy purple sheet.
4. Run the above stack through the thermo-fax with the dial set at the 4 o'clock position.
5. You now have a ditto master.

or

B. Follow the directions with your thermo-fax machine.

or

C. Using a ball point pen:
1. Lay Tear Out page on new ditto master.
2. Paper clip these together.
3. Go over all the lines and information on the tear out page with a ball point pen or typewriter.
4. You now have a ditto master.

2. To make TRANSPARENCIES:

A. Lay acetate sheet (transparency film) on top of the tear out page.

B. Run the above stack through the thermo-fax machine with the dial set at the 9 o'clock setting.

C. You now have a transparency.

AGENCIES: Community and State

1. American Academy of Pediatrics
1801 Hinman Avenue
Evanston, Illinois 60204

2. American National Red Cross
17 & D Streets
Washington, D. C. 20006

3. Asthma & Allergy Foundation of America
801 Second Avenue
New York, New York 10017

4. Channing L. Bete, Inc.
45 Federal St.
Greenfield, Massachusetts 01301

5. Chemical Specialities Manufacturers Assoc., Inc.
Suite 1120
1001 Connecticut Ave., N. W.
Washington, D. C. 20036

6. Consumer Information Center
Pueblo, Colorado 81009

7. Department of Health
New York, New York

8. Eli Lilly and Company
Public Relations Services Department
307 East McCarty St.
Indianapolis, Indiana 46206

9. Ft. Wayne Board of Health
Childhood Lead Poisoning Prevention
Room 545
1 East Main Street
City County Building
Fort Wayne, Indiana 46802

10. Gerber Products Company
Fremont, Michigan 49412

11. Heinz U.S.A.
Consumer Relations Department
P. O. Box 57
Pittsburgh, Pennsylvania 15230

Agencies (continued)

12. Illinois Governor's Council on
Developmental Disabilities
222 South College
Springfield, Illinois 62706

13. Illinois State WIC Program
Division of Family Health
Illinois Department of Public Health
535 West Jefferson St., Suite 450
Springfield, Illinois 62761

14. Indiana Association for Retarded Citizens
(See # 3, Directories)

15. Indiana State Board of Health
(See # 16, Audio Visuals)

16. Indiana State Department of Public Instruction
Division of Special Education
Room 229, State House
Indianapolis, Indiana 46204

17. Johnson & Johnson
Baby Products Company
Consumer & Professional Services
220 Centennial Ave.
Piscataway, New Jersey 08854

18. Lead Industries Association, Inc.
292 Madison Ave.
New York, New York 10017

19. Loma Linda Foods
Medical Products Division
Riverside, California 92505

20. Metropolitan Life Insurance Company
Health & Welfare Division
One Madison Avenue
New York, New York 10010

21. National Committee for The Prevention of Child Abuse
Indiana Chapter
P. O. Box 1226
Columbus, Indiana 47201

Agencies (continued)

22. National Dairy Council
6300 North River Road
Rosemont, Illinois 60018
(See local chapters under # 6, audio visuals)

23. National Foundation-March of Dimes
1275 Mamaroneck Avenue
White Plains, New York 10605
(See local chapters under # 15, audio visuals)

24. National Society for The Prevention of Blindness, Inc.
79 Madison Avenue
New York, New York 10016

25. Optometric Development Enterprises
7000 Chippewa
St. Louis, Missouri 63119

26. Plough, Inc.
P. O. Box 377
Memphis, Tennessee 38151

27. Proctor and Gamble
Cincinnati, Ohio 45201

28. Ross Laboratories
Columbus, Ohio 43216

29. Social Health Association of Central Indiana, Inc.
615 North Alabama St.
Room 216
Indianapolis, Indiana 46204

GOVERNMENT AGENCIES

1. National Institute of Health
9000 Rockville Pike
Bethesda, Maryland 20014

Divisions:

Division of Research Resources

Fogarty International Center

National Cancer Institute

National Heart, Lung, and Blood Institute

National Institute of Allergy and Infectious Diseases

National Institute of Arthritis, Metabolism and Digestive Diseases

National Institue of Child Health and Human Development

National Institute of Environmental Health Sciences

National Institute of General Medical Sciences

National Institute of Neurological and Communicative Disorders and Storke

2. National Institute of Mental Health
5600 Fishers Lane
Rockville, Maryland 20857

3. Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

4. U. S. Consumer Product Safety Commission
Washington, D. C. 20207

Area Office:

Chicago Area Office
Consumer Product Safety Commission
230 S. Dearborn Street
Room 2945
Chicago, Illinois 60604

5. U. S. Department of Agriculture
Food & Nutrition Service
Consumer & Food Economics Institution
Agricultural Research Service
Hyattsville, Maryland 20782

6. U. S. Department of Commerce
National Bureau of Standards
Institute for Applied Technology
Center for Consumer Product Technology
Washington, D. C.

7. U. S. Department of Health, Education & Welfare
Public Health Service
Center for Disease Control
Atlanta, Georgia 30333

8. U. S. Department of Health, Education & Welfare
Public Health Service
Health Services & Mental Health Administrator
Maternal and Child Health Service
Rockville, Maryland 20852

9. U. S. Food & Drug Administration
Room 601
575 North Pennsylvania
Indianapolis, Indiana 46204

AUDIO-VISUALS

1. American Red Cross
Allen-Wells Chapter
1212 E. California Rd.
Ft. Wayne, Indiana 46825

2. Child Development Center
22 N. Pauline
Memphis, Tennessee 38105

3. Child Restraint Committee
Action for Child Transportation Safety
P. O. Box 266
Bothell, Washington 98011

4. Child Transportation Safety
16 Hobart Gap Rd.
Short Hills, New Jersey 07078

5. CRM/McGraw-Hill Films
110 Fifteenth St.
Del Mar, California 92014

6. Dairy Council of Northern Indiana, Inc.
501 North Main Street
South Bend, Indiana 46601

Covering the counties of:

Adams
Allen
Benton
Carroll
Cass
Dekalb
Elkhart
Fulton
Huntington
Jasper
Kosciusko
Lagrange
LaPorte
Marshall
Miami
Newton
Noble
Porter
Pulaski
St. Joseph
Starke
Steuben
Wabash
Wells
White
Whitley

7. Dairy Council, Inc.
50 South Parder Ave.
Indianapolis, Indiana 46201

Covering the counties of:

Bartholomew
Blackford
Boone
Brown
Clay
Clinton
Decatur
Delaware
Fayette
Fountain
Franklin
Grant
Greene
Hamilton
Hancock
Hendricks
Henry
Howard
Jackson
Jay
Jefferson
Jennings
Johnson
Lawrence
Madison
Marion
Monroe
Montgomery
Morgan
Ohio
Owen
Parke
Putnam
Randolph
Ripley
Rush
Scott
Shelby
Sullivan
Switzerland
Tippecanoe
Tipton
Union
Vermillion
Vigo
Warren
Wayne

8. Dairy and Food Nutrition Council
of the Southeast, Inc.
Mid-South Division
1300 East Morgan Ave.
Evansville, Indiana 47711

Covering the counties of:

Clark
Crawford
Daviess
Dubois
Floyd
Gibson
Harrison
Knox
Martin
Orange
Perry
Pike
Posey
Spencer
Vanderburgh
Warrick
Washington

9. Educational Development Center
55 Chapel St.
Newton, Massachusetts 02160

10. Films Incorporated
144 Wilmette Ave.
Wilmette, Illinois 60091

11. Hawaii State Department of Health
Office of Health Education
P. O. Box 3378
Honolulu, Hawaii 96801

12. Health Education Service
Topeka, Kansas 66612

13. High Scope Educational Research Foundation
600 North River St.
Ypsilanti, Michigan 48197

14. The IFHC Resource Library
Indiana Family Health Council, Ind.
21 Beachway Drive, Suite B
Indianapolis, Indiana 46224

15. Indiana March of Dimes Offices

CIC-Central Indiana Chapter
5235 N. Winthrop Ave.
Indianapolis, 46220
(317) 283-1358

ICD-Indiana, Central District
3728 N. Shadeland Ave.
Indianapolis, 46226
(317) 547-5293

County	Office	County	Office
Adams	IND	Hamilton	CIC
Allen	NEIC	Hancock	CIC
Bartholomew	ISD	Harrison	ISD
Benton	SC	Hendricks	CIC
Blackford	ICD	Henry	ICD
Boone	CIC	Howard	IND
Brown	ISD	Huntington	NEIC
Carroll	SC	Jackson	ISC
Cass	IND	Jasper	IND
Clark	ISD	Jay	ICD
Clay	ISD	Jefferson	ISD
Clinton	SC	Jennings	ISD
Crawford	OCT	Johnson	CIC
Daviess	ISD	Knox	ISD
Dearborn	ISD	Kosciusko	IND
Decatur	ICD	LaGrange	IND
DeKalb	IND	Lake	LCC
Delaware	ICD	LaPorte	IND
DuBois	OCT	Lawrence	ISD
Elkhart	IND	Madison	ICD
Fayette	ICD	Marion	CIC
Floyd	LSD	Marshall	IND
Fountain	SC	Martin	OCT
Franklin	ICD	Miami	IND
Fulton	IND	Monroe	ISD
Gibson	ISD	Montgomery	SC
Grant	ICD	Morgan	CIC
Greene	ISD	Newton	IND

County	Office	County	Office
Noble	IND	Starke	IND
Ohio	ISD	Steuben	IND
Orange	OCT	Sullivan	ISD
Owen	ISC	Switzerland	ISD
Parke	ICD	Tippecanoe	SC
Perry	OCT	Tipton	ICD
Pike	OCT	Union	ICD
Porter	IND	Vanderburgh	VCC
Posey	ISD	Vermillion	ICD
Pulaski	IND	Vigo	ISD
Putnam	ICD	Wabash	IND
Randolph	ICD	Warren	SC
Ripley	ISD	Warrick	OCT
Rush	ICD	Washington	ISD
St. Joseph	IND	Wayne	ICD
Scott	ISD	Wells	NEIC
Shelby	ICD	White	IND
Spencer	OCT	Whitley	NEIC

(National Office under agencies # 23.)

16. Indiana State Board of Health
Division of Health Education
1330 West Michigan Street
Indianapolis, Indiana 46206

17. Indiana State Department of Public Instruction
Professional Library
Division of Instructional Media
Room 229, State House
Indianapolis, Indiana 46204

18. Indiana University
Audio-Visual Center
Bloomington, Indiana 47401

19. International Film Bureau
332 South Michigan Ave.
Chicago, Illinois 60604

20. Johnson and Johnson Regional Film Center
Association-Sterling Films
512 Burlington Avenue
LaGrange, Illinois 60525

21. Kent State University
Audio-Visual Services
Kent, Ohio 44242

22. Metropolitan Life Insurance Co.
(See # 20, Agencies)

23. Michigan State University
Marketing Division Instructional Media Center
East Lansing, Michigan 48824

24. Modern Talking Pictures, Inc.
2323 New Hyde Park Road
New Hyde Park, New York 11040

25. National Audiovisual Center
Reference Section RL
General Services Administration
Washington, D. C. 20409

26. National Committee for Prevention of Child Abuse
Publishing Department
Suite 510
East Wacker Drive
Chicago, Illinois 60601

27. New York University Film Library
26 Washington Square
New York, New York 10003

28. Northeast Indiana Region
Instructional Resource Center for
Handicapped Children & Youth
Saint Francis College
2701 Spring Street
Fort Wayne, Indiana 46808

29. Pampers Educational Program
of Proctor & Gamble
Cincinnati, Ohio

30. Parents Magazine Films
Vanderbilt Ave.
New York, New York

31. Perennial Education, Inc.
477 Roger Williams
P. O. Box 855 Ravinia
Highland Park, Illinois 60035

32. Physicians for Automotive Safety
Communications Department
5 Eve Lane
Rye, New York 10580

33. Prevention of Blindness
Public Relations Department
79 Madison Avenue
New York, New York 10016

34. Rehabilitation Film Library
20 West 40th Street
New York, New York 10018

35. Society for Visual Education
1345 Diversy Parkway
Chicago, Illinois 60614

36. State Optometric Associations or Film Comm, Inc.
108 W. Grand
Chicago, Illinois 60610

37. Total Communication Laboratory
Westminister, Maryland 21157

38. University of California
Extension Media Center
2223 Fulton Street
Berkeley, California 94720

39. University of Iowa
Audio-Visual Center
Media Library
C-5 East Hall
Iowa City, Iowa 52242

40. U. S. Food & Drug Administration
(See # 9, Government Agencies)

* Audio-visuals available on free-loan basis
unless rental fee is given.

DIRECTORIES

1. Birth Defects Genetic Services
International Directory
National Foundation/March of Dimes
Box 2000
White Plains, New York 10602

2. Directory of Services for The Handicapped in Indiana
Commission for The Handicapped
Indiana State Board of Health
1330 West Michigan St.
Indianapolis, Indiana 46206
Telephone: 317-633-5680

3. Indiana Mental Retardation Directory
Indiana Association for Retarded Citizens
1 Virginia Avenue Suite 333
Indianapolis, Indiana 46204
*Excellent
Telephone: 317-632-4387

4. Indiana School Directory
State Department of Public Instruction
227 State House
Indianapolis, Indiana 46204

5. National Directory of Services for School-Age Parents
NACSAP
7315 Wisconsin Ave.
Suite 211-W
Washington, D. C. 20014
Telephone: 301-654-2335

6. Northern Regional Service Center
635 S. Main Street
South Bend, Indiana 46623

7. Protective Services for Abused and Neglected Children
and Their Families
ED 135 171 EC093053 $ .83 plus postage

CATALOGUES

1. American Optometric Association
   243 North Lindburg Avenue
   St. Louis, Missouri 63141

2. American Humane Association
   Englewood, California 80110

3. Consumer Information Center
   Pueblo, Colorado 81009

4. CRM McGraw-Hill Films
   110 Fifteenth Street
   Del Mar, California 92014

5. Dairy Council of Northern Indiana, Inc.
   501 North Main Street
   South Bend, Indiana 46601

6. Early Childhood Films
   Indiana University Audio-Visual Center
   Bloomington, Indiana 47004

7. Government Printing Office
   Washington, D. C. 20402

8. Indiana Association for Retarded Citizens
   1 Virginia Avenue, Suite 333
   Indianapolis, Indiana 46204

9. Indiana Department of Public Instruction
   The Professional Library
   Division of Instructional Media
   120 W. Market St., 10th Floor
   Indianapolis, Indiana 46204

10. Indiana Family Health Council, Inc.
    IFHC Resource Library
    21 Beachway Drive, Suite B
    Indianapolis, Indiana 46224

11. Indiana State Board or Health
    1330 West Michigan Street
    Indianapolis, Indiana 46206

12. Johnson & Johnson Baby Products Company
    Consumer & Professional Services
    220 Centennial Avenue
    Piscataway, New Jersey 08854

13. John Tracy Clinic
    Educational Materials
    (Language Development)
    806 W. Adams Blvd.
    Los Angeles, California 90007

14. Metropolitan Life Insurance Co.
    One Madison Ave.
    New York, New York 10010

15. National Institute of Mental Health
    5600 Fishers Lane
    Rockville, Maryland 20857

16. National Dairy Council
    6300 North River Road
    Rosemont, Illinois 60018

17. National Safety Council
    444 N. Michigan Avenue
    Chicago, Illinois 60611

18. National Society for Autistic Children
    1234 Massachusetts Avenue, N.W.
    Washington, D. C. 20005

19. National Society for The Prevention of Blindness, Inc.
    79 Madison Avenue
    New York, New York 10016

20. NIH Publications List
    U. S. Department of Health, Education & Welfare
    Public Health Service
    National Institutes of Health
    Bethesda, Maryland 20014

21. President's Committee on Mental Retardation
    Washington, D. C. 20201

22. Safety In Cars: Acts Resources
    Child Restraint Committee
    Action for Child Transportation Safety
    P. O. Box 266
    Bothell, Washington 98011

23. Science Research Associates, Inc.
    259 East Erie Street
    Chicago, Illinois 60611

24 Social Health Association of Central Indiana, Inc.
   615 North Alabama Street, Room 216
   Indianapolis, Indiana 46204

25. University of Kansas
Audiovisual Center
Film Rental Service
746 Massachusetts Street
Lawrence, Kansas 66044

26. U. S. Consumer Product Safety Commission
Washington, D. C. 20207

THE MOTHER AND FATHER
OF THE GROWING CHILD
IN THEIR ROLE AS

DIETITIAN

I. The Mother and Father of The Growing Child In Their Role as Dietitian

Their Responsibility in The Prevention of Mental Retardation In The Next Generation

Objectives

GENERAL

a. *To give the students an understanding that malnutrition, undernutrition or hunger are a problem in the United States.*
b. *To give the students an understanding that good nutrition is necessary for brain cell growth and functioning.*
c. *To give the students an understanding that good nutrition is necessary for the optimal development of intelligence.*
d. *To give the students an understanding of why the parents of an infant or growing child must sometimes individualize their diet to prevent mental retardation or learning problems in that child.*
e. *To give the students an understanding of the principles of feeding a low-birth-weight infant, a normal infant and the growing child.*
f. *To give the students an understanding of how they can obtain nutritious foods for their infant or child if they are part of a low income family.*
g. *To give the students the principles of food preparation necessary to avoid metal, pesticide, insecticide, toxin and infectious poisoning of the child.*
h. *To give the students a desire to provide their future child or children with optimal nutrition.*

SPECIFIC

Cognitive

1. The student will be able to identify the time in the life of the growing child in which protein, iron and/or caloric inadequacies can be the most devastating to brain development.
2. The student will be able to state what percentage of American children are severely malnourished.
3. The student will be able to label the four (4) protective systems and the major receptive areas of the brain.
4. The student will be able to state the relative size increase in the brain for the first year of life.
5. The student will be able to explain the phenomena of learning in relation to the neural cells.
6. The student will be able to relate specific nutrients and one chemical to the functioning of the brain cell.
7. The student will be able to give at least four (4) ways in which lack of good nutrition can effect the brain cell.
8. The student will be able to explain the cycle of malnutrition, school failure and poverty.
9. The student will be able to explain why a child should not be forced to eat.
10. The student will be able to explain why mealtime should be a pleasurable experience for an infant and child.
11. The student will be able to explain when and how new foods are introduced to an infant.
12. The student will be able to explain how food intake when a child has an inborn error of metabolism can cause mental retardation and how mental retardation is prevented in such children.
13. The student will be able to explain why the low-birth-weight infant must have an individualized diet.
14. The student will be able to list eight (8) advantages of breast-feeding an infant and three (3) situations in which it may not be advisable to breast-feed.
15. The student will be able to explain how diarrhea can result in mental retardation and what diet is part of its treatment.
16. The student will be able to define allergy and explain its mechanism.
17. The student will be able to list five (5) foods which commonly cause allergies and explain how to determine which food might be the offending one.
18. The student will be able to explain the role of iron in getting sufficient oxygen to the brain.
19. The student will be able to state five (5) nutritional deficiencies, excess or imbalances which should be considered in the treatment of hyperactivity.
20. The student will be able to explain how Diabetes can cause mental retardation and the role diet plays in its control.
21. The student will be able to list four (4) ways in which those with limited buying power can obtain nutritious food for their family.
22. The student will be able to list four (4) government food programs available to low income families.
23. The student will be able to list four (4) sources of food contamination which could result in brain damage.
24. The student will be able to outline eight (8) principles of safe food preparation.

Affective

1. The student will feel that malnutrition, improper nutrition and hunger are a problem in the United States.
2. The student will feel that good nutrition, particularly protein, iron and adequate calories are vital to brain and nervous system development and functioning.
3. The student will feel that good nutrition plays an important role in the optimal development of intelligence.
4. The student will feel that an individualized diet for some children can make the difference between normalcy and mental retardation for that child.

5. The student will feel that a parent needs to know some basic principles of development in the feeding of infants and growing children.
6. The student will feel that they have the knowledge of how to provide their child with adequate nutrition if they become part of a low income family.
7. The student will feel that proper food preparation is essential to provide the child food that is free from substances which could be poisonous to the child.
8. The student will feel that they want their future child to have first priority in food consumption.
9. The student will feel that one of their roles as parent is that of dietitian.

Background Information for the Teacher

The parents in their role as "Dietitian" for the family and especially for children, since children are growing organisms and as such are very dependent on what they eat, can do a great deal to provide the nutrients necessary both in quality and quantity to allow for optimum development of the brain and nervous system of their children in relation to the child's individual biochemical needs. Neither improved nutrition nor improved stimulation alone can accomplish the task of the development of intelligence . . . they must walk hand in hand.

WHY IS NUTRITION A CONSIDERATION IN THE PREVENTION OF MENTAL RETARDATION ?

Consider some statistics.

... 4-5% of American children are severely malnourished.
... There are 10 to 20 million children in the United States who suffer from the effects of malnutrition or starvation.
... 3% of all newborns are undernourished.
... 33% of children under six in the United States have low blood hemoglobin indicating iron deficiency.
... 20% of children under six in the United States consume less than the recommended daily allowances of calories.
... 17% of American children have abnormally low blood protein.
... A ten state survey of the nutritional status of 86,000 Americans at all age levels concluded that children of the poor grow less well than those of the affluent.
... Chronic undernutrition is the lot of millions living out their whole lives in poverty.
... 75-85% of all mentally retarded children are severely malnourished.
... 3 to 5 times the incidence of mentally retarded children are found among the poor than among the more affluent.
... There are 29 million Americans who cannot afford to buy adequate quantities of food for their families.

... Kwashiorkor (severe protein deficiency) and Marasmus (severe calorie deficiency) are seen in hospitals in the United States serving large lower income populations.
... When infants "fail to thrive" 50% do so because of the neglect of the mother while 30% fail to thrive for organic reasons and 20% because of underfeeding due to understandable error.
... At least 1/2 of the world's population has survived a period of severe nutritional deprivation during childhood.
... 1/3 of the world's children are undernourished.

Malnutrition is probably the world's most pervasive health problem. For the majority of Americans who have not experienced even prolonged hunger let alone malnutrition it is very difficult if not impossible to identify with the immensity of the problem or to see it as a viable cause of possible mental retardation, lessened learning potential or behavioral problems.

That malnutrition singularly causes mental retardation has not been conclusively established for malnutrition is extremely difficult to separate from innate potential, health of the child, the conditions and environment in which the child lives and the child's relationship with family and society, all of which are interwoven with and into the nutrition of the infant or child.

HOWEVER THERE IS A GROWING BODY OF DATA AND KNOWLEDGE THAT SUPPORTS THE BELIEF THAT INTELLIGENCE CAN BE PERMANENTLY IMPAIRED BY INADEQUATE INTAKE OF PROTEINS AND/OR CALORIES AND IRON ESPECIALLY IN EARLY LIFE -- INFANTS AND YOUNG CHILDREN.

Also the time and length of undernutrition are critical considerations. Malnutrition in infancy and its effects on intelligence and behavior probably cannot be reversed by subsequent good nutrition if begun after the age of two.

The nutritional status of children is not an "all or nothing question." It can be seen as a gradient between normal and gross malnutrition syndromes.

Figure 1. Nutrition Gradient Effecting Mental Development.

+3	*OPTIMAL NUTRITION*
+2	*GOOD NUTRITION*
+1	*FAIR NUTRITION*
0	Poor Nutrition
-1	Hunger
-2	Mild Malnutrition
-3	Moderate Malnutrition
-4	Malnutrition
-5	Chronic Malnutrition
-6	Irreversible Starvation

"A BIRD'S EYE VIEW OF THE NUTRITION GRADIENT"

-1	Hunger is the temporary absence of food which can be easily and immediately relieved with food intake.
-2 & 3	Mild or Moderate Malnutrition. Very little is known about mild or moderate malnutrition and its effect on learning. Diets which are marginal in nutrition often result in iron deficiency anemia.
-4	Malnutrition may result in an impairment or risk of impairment to mental and physical health by failure to meet the nutrient requirements of the growing child so that specific symptoms or conditions appear such as anemia, goiter, rickets, vitamin deficiencies or retardation of physical and mental growth. A diet deficit in calories is usually also a protein deficient diet since a lack of calories will result in

the utilization of protein for energy. Malnutrition requires prolonged rehabilitation. Malnutrition can be a lack of calories or any one of the components of nutrients - carbohydrates, fats, proteins, minerals and/or vitamins.

-5 Chronic Malnutrition.
Undiagnosed protein deficiency is probably very common. It shows few symptoms initially later showing loss of weight, collection of body fluids and weakness. Chronic malnutrition can also cause deprivation Dwarfism (stunted growth) with accompanying mental retardation and emotional problems.

Kwashiorkor is a gross protein deficiency usually accompanied by excess carbohydrate intake and a subsequent lowered resistance making the child prey for infectious diseases. Anywhere from the 4th to 6th month of life growth and nutritional needs increase whereas breast milk begins to decline, the infant's immunity inherited from its mother is running out and its ability to move about and to become exposed to infection is greater. After weaning at about one year or as breast milk declines the healthy infant (at breast) is switched to a diet mainly made up of carbohydrates either because of economic necessity, ignorance or because the family is disorganized under emotional and financial stress. The symptoms of Kwashiorkor are a collection of body fluids resulting in swelling, anemia, diarrhea, apathy, listlessness, loss of skin and hair pigmentation and the arrest of all mental development. In industrialized countries or countries where companies have pushed for the conversion from breast to formula milk for their own gain at the expense of infants the onset of Kwashiorkor may be much earlier. It is a disease common to the developing countries but is also seen in hospitals in the United States serving large numbers of lower income populations.

Marasmus results from an overall deficiency of food especially calories and also low protein intake. The child with Marasmus is more likely than the child with Kwashiorkor to have intellectual impairment because it strikes very early in infancy when the brain is undergoing rapid development. The bottle fed infant may be receiving a calorie-deficient substitute for breast milk such as a "watered down" formula. As the child's tissues waste away and the child becomes listless and apathetic he or she becomes limited in the responses it is making to its mother and father and they subsequently respond less to such an apathetic infant and they turn their attention to other healthier appearing members of the family. Marasmus is a chronic disease in infants in the slums of industrial society where the inadequately bottle fed baby would at least get a year of fair to adequate nutrition at the breast if nursing was given its original status.

However, even the breast fed baby is at certain nutritional risks in a general environment of poverty and unsanitary conditions for breast milk may be low in some nutrients if the mother is undernourished.

Also prenatal malnutrition may predispose an infant to particularly severe nutritional consequences if he or she is exposed to postnatal malnutrition as well. Malnourished women, as a group, enter marriage, the labor force and childbearing at an early and high risk age. The mother's nutrition in such a setting may effect her reproductive and endocrine system so that as she carries the baby the placental development may be small and inadequate and she may not utilize the food she does eat well. Acute malnutrition of the generally well-fed woman is not comparable to the malnutrition of the poor and ill-fed mother in terms of their comparative ability to sustain the high level of nutrients needed by the fetus. In famines occurring during World War II the births of children occurring before, during and after the famine in areas of countries with previous good health and nutritive status did not effect the birth weight and mental development of the children for the long term nutritional status of the mother protected the developing fetus.

Malnutrition may extend beyond the malnourished parents and offspring to even the second and third generations even though these generations are well-fed. Thus risk is piled upon risk.

-6 Irreversible Starvation occurs when the body chemistry, particularly the protein level, is so out of balance that even good nutritional therapy cannot reverse the body's deterioration and death.

"THAT DESIRABLE GRADIENT - OPTIMAL NUTRITION"

Optimal nutrition provides all of the nutrients necessary for

... optimal mental and physical growth
... energy
... repair of tissue
... resistance to infection

in relation to the individual biochemical needs of the infant and growing child. Recommended dietary allowances do not indicate an individual infant or child's specific nutritional needs for the amount of nutrients needed are effected by the

1. preconception nutritional status of the mother and grandmother
2. birth weight and condition of the child
3. illness or infection present
4. individual biochemical makeup of the child
5. genetic factors
6. presence or absence of other nutrients in the diet
7. medications the infant or child is taking
8. toxic elements in the environment and
9. psychological stress.

We indeed are what we eat ...

... 61% water
... 17% proteins
... 14% lipids (fat)
... 7% minerals
... 1% carbohydrates.

Figure 2 outlines the nutrients, sources of those nutrients, function of the nutrients and the results of the nutrient's deficiency for proteins, lipids (fats), carbohydrates, vitamins and minerals in relation to mental development. The biochemical functioning of the body can profoundly alter the way in which the brain perceives its environment. To think and behave properly the central nervous system must be nourished adequately with a balanced supply of nutrients.

Figure 2. Major Nutrients, Their Function, Sources and Resulting Deficiencies in Relation to Mental Development.

Major Nutrients	Function	Sources	Results of a Deficiency
1)Protein	Supplies 4 calories per gram for energy supplying 15% of the body's energy requirement. It is converted to carbohydrate. Provides the 9 essential amino acids which must be supplied from food for they cannot be made by the body. They are Histidine (essential only to infants) Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Threonine, Tryptophan and Valine. Constitutes part of the structure of every cell. Extremely important for the development and growth of body cells. Part of enzymes, hormones and body fluids. A component of antibodies that resist infection.	Meat Poultry Fish Eggs Milk Cheese Beans & peas Whole grain cereals Nuts *Breast milk is considerably higher in cystine which is needed by the low weight infant for they cannot convert methionine to cystine.	A low protein diet produces a loss of appetite, food intake decreases resulting in a protein and calorie deficiency. The deficiency of a single essential amino acid is as serious as if the whole 9 are omitted from the diet for the body cannot complete protein manufacture and rejects the whole set releasing them in the urine. Stunted growth. Weight loss. Anemia. A DECREASE IN THE NUMBER AND/OR QUALITY OF BRAIN CELLS.

Figure 2. Major Nutrients, Their Function, Sources and Resulting Deficiencies In Relation To Mental Development. (continued)

2)Lipids (Fats)	Supplies 9 calories per gram for energy. Are converted to carbohydrates. A component of every cell and cell membrane. Supplies essential fatty acids which cannot be manufactured by the body. Provides and carries fat soluble vitamins (A, D, E, K) to facilitate absorption. A component of myelin, a protective cover for brain cells.	Butter Vegetable oil Margarine Salad dressing Meat Cream Nuts Cheese	Poor absorption and utilization of fat soluble vitamins. INTELLECTUAL DEFICITS FROM INCOMPLETE DEVELOPMENT OF CELL MEMBRANES SO THAT EACH CELL CANNOT CARRY OUT ITS WORK WITHOUT INTERFERENCE FROM OTHER CELLS.
3)Carbohydrates	Supplies 4 calories per gram for energy. They are a major source of energy for the central nervous system so protein can be used for growth and repair. Supplies fiber (if unrefined) for elimination. Assists in fat utilization. Part of structure in the tissue of brain and nervous system.	Cereal Potatoes Bread Sugar Honey Dried beans Fruits Vegetables	Cause a drop in blood sugar levels. THE BRAIN NEEDS A CONSTANT AND EVEN SUPPLY OF SUGAR FOR ENERGY. PROTEIN IS USED FOR INCREASED PERCENTAGE OF ENERGY RATHER THAN BUILDING AND REPAIR.

Figure 2. Major Nutrients, Their Function, Sources and Resulting Deficiencies In Relation To Mental Development. (continued)

4) Vitamins A	Formation and maintenance of mucous membranes that line the body cavities and tracts which increase resistance to infection. Promote healthy eye tissue and eye adaptation to light.	Liver Butter Margarine Dark yellow & greens vegetables Fruits *Breast and whole milk should be supplemented for the infant.	DECREASED ABILITY TO RESIST INFECTION. DAMAGE TO EYESIGHT.
5) B_1 (Thiamine)	Necessary for the function of sensory nerves.	Pork Organ meat Nuts Fortified cereal products	BRAIN CELL ABNORMALITIES. LOSS OF MEMORY. DECREASED ACETYLCHOLINE WHICH IS NECESSARY FOR NERVE IMPULSE TRANSMISSION. NERVOUS IRRITABILITY. DEPRESSION FATIGUE.
6) B_2 (Riboflavin)	Part of coenzyme in fat synthesis. Releases energy in our food. Keeps central nervous system and digestive system functional.	Organ meat Milk Cottage cheese Whole grains	BLURRED VISION. MYELIN DEGENERATION IN SPINAL CORD.

Figure 2. Major Nutrients, Their Function, Sources and Resulting Deficiencies In Relation To Mental Development. (continued)

7) Niacin	Part of a coenzyme in fat synthesis, tissue respiration. Necessary for utilization of carbohydrates for energy. Healthy digestive tract maintenance.	Liver Meat Poultry Fish Peanuts Fortified cereal products Peas & beans	NEUROTIC BEHAVIOR. DEGENERATION OF NERVE CELLS IN THE BRAIN AND BRAIN STEM.
8) B_6 (Pyridoxine)	Proper central nervous system function. Prevention of low blood hemoglobin levels.	Wheat germ Kidney Liver Meat Whole grains	SEIZURES WITH RETARDED DEVELOPMENT IF THEY ARE PROLONGED. IMPAIRED GROWTH. HYPERIRRITABILITY.
9) C (Ascorbic Acid)	Aids in the utilization of iron. Metabolism of some amino acids. Forms substances that hold cells together, strengthening blood vessels and hastening healing. Increases resistance to infection.	Broccoli Citrus fruits Fresh vegetables *Whole cow milk or evaporated milk should be supplemented for the infant.	SUSCEPTABILITY TO INFECTION. ANEMIA.

Figure 2. Major Nutrients, Their Function, Sources and Resulting Deficiencies In Relation To Mental Development. (continued)

10)D	Absorption of calcium and phosphorous.	Fortified milk Fruits Vegetable oil *Breast-fed infants may need supplements in the north.	SEIZURES IN INFANTS. DELAYED CLOSING OF FONTANELS. SOFTENING OF THE SKULL.
11)E	Protects cells from destructive forces of chemicals and environmental oxidants.	Margarine Wheat germ Milk Meat Eggs	LOSS OF NERVE CELLS IN MEDULLA OBLONGOTA (mid portion of brain stem).
12)K	Formation of clotting substance-prothrombin.	Liver Eggs Green, leafy vegetables	HEMORRHAGE IN THE INFANT FOR K IS NOT SYNTHESIZED IN THEIR INTESTINAL TRACT.
Minerals			
13)Iron	Aids in the utilization of energy. Combines with protein to form hemoglobin, the oxygen carrying component of the blood. Increases resistance to infection.	Enriched cereal Liver Red meat Dried peas & beans Shellfish Whole grains Dark green, leafy vegetables	LOW VITALITY. ANEMIA. DECREASED HEMOGLOBIN FORMATION. LOWERED RESISTANCE TO INFECTION. POOR APPETITE. FATIGUE.

Figure 2. Major Nutrients, Their Function, Sources and Resulting Deficiencies In Relation To Mental Development. (continued)

		Infant sources: cereal liver meat egg yolks *Anemic mother's milk is a poor source of iron. A well nourished mother provides her nursing child enough iron until 4-6 mo. Iron formula adequate but cows milk should be supplemented.	
14)Calcium	Normal nerve impulse transmission. Maintenance of body fluid levels. Activation of some enzymes. Strength to bone and teeth structures.	Milk Cheese Sardines Dark green, leafy vegetables	STUNTED GROWTH. LOWERED VITALITY IMPAIRMENT OF TRANSMISSION OF NERVE IMPULSES.

Figure 2. Major Nutrients, Their Function, Sources and Resulting Deficiencies In Relation To Mental Development. (continued)

15)Phosphorous	A buffer salt metabolism of fats and carbohydrates. Cell multiplication. Activation of enzymes.	Milk Cheese Egg yolk Meat Legumes Nuts Whole grains Vegetables	IMPAIRMENT OF TRANSMISSION OF NERVE IMPULSES.
16)Potassium	Intracellular fluid balance which is extremely important in childhood. Nervous system irritability.	Vegetables Cereal Fruit	IMPAIRMENT OF TRANSMISSION OF NERVE IMPULSES. DEHYDRATION. (Easily unbalanced by vomiting and diarrhea and dehydration.) DEPLETION OF GLYCOGEN IN THE TISSUES.
17)Sodium	Buffer salt. Nervous system irritability. Water balance of cells which is extremely important in childhood.	Salt (should not be added to baby food) Meat Milk Eggs	NAUSEA. DIARRHEA. DEHYDRATION. (Easily unbalanced by dehydration.) IMPAIRMENT OF TRANSMISSION OF NERVE IMPULSES.
18)Magnesium	Transmission of nerve impulses. Proper excitation of neurons. Part of coenzyme system.	Cereal Meat	DEPRESSION. NERVOUS IRRITABILITY. LIABILITY TO SEIZURES. (Easily unbalanced by dehydration.)

Figure 2. Major Nutrients, Their Function, Sources and Resulting Deficiencies In Relation To Mental Development. (continued)

19)Iodine	Necessary for the formation of thyroxine.	Iodized salt Seafood *Add to child's food after 1st year.	CRETINISM. GOITER. STUNTED GROWTH. LOWERED METABOLIC RATE.
20)Copper	Utilization of iron for hemoglobin formation.	Liver Meat Nuts Legumes Fruits and vegetables Whole grains	NUTRITIONAL ANEMIA.
21)Zinc	Enzyme functioning. Absorption of carbohydrates and proteins. Utilization of insulin.	Meat	ANEMIA. GROWTH RETARDATION.
22)Chlorine	Regulates acid base balance. Enzyme action. Electroneutrality.	Eggs Cheese Milk Meat Nuts Legumes	- ACID BASE BALANCE IS DISTURBED POOR WATER RETENTION.
23)Sulfur	Constituent of insulin.	Eggs Cheese Milk Meat Nuts Legumes	DISTURBANCE OF OXIDATION OF FOODS.

About fifty (50) nutrients are needed each day. If the nutrients given in fig. 2 obtained daily the remainder are likely to be consumed. Even though some minerals are present in only trace amounts their absence can cause serious problems and in excess they can be toxic.

It takes a great variety of substances from the earth to keep us going each day not only in terms of providing for energy, building and maintaining body cells and regulating body processes but also in terms of optimal function of the central nervous system and attitudes towards learning.

Food patterns and habits are formed in early life and are an important part of interaction between the parents and the child not only in infancy but also in the growing child. Foods that are essential to life and intellectual development are also a source of pleasure and security based on existing food habits established in infancy in the context of cultural, social and economic factors.

The times at which new foods are added to the "milk" diet of an infant vary depending on the knowledge and beliefs of the family's doctor but some general guidelines are given in figure 3. Vitamin A, C, D and iron are supplemented in early infancy depending on their milk source - breast, whole, evaporated, formula milk or milk substitutes.

FOODS ARE THE PARENTS TO OFFER BUT IT SHOULD DEFINITELY BE THE CHILD'S PEROGATIVE TO TAKE THEM OR LEAVE THEM. FORCING, URGING, THREATENING, BRIBING OR USING FOOD AS A REWARD OR PUNISHMENT CAN LEAD TO OBESITY, EMOTIONAL PROBLEMS AND/OR ABUSE.

An infant may eat just a few teaspoons of food, a baby 1/3 of adult portions, a 3-year-old 1/2 of adult portions and a 6-year-old 2/3 of adult portions.

The fact that more food seems to dribble down the infant's front when feeding is first started is not from resistance or stubbornness but from the fact that the thrust of the tongue to obtain milk from the nipple "thrusts" the food out of the mouth.

New foods should be introduced one at a time using it 2 or 3 times a week. Plain versus mixed foods should be used with no salt or sweetening added.

Figure 3. A New Experience - Solid Foods.

At	Introduce
4-6 months	Yellow vegetables. Fruits. Cereals. Can switch to low calorie 2% but not skim milk at 5 months. As many foods as possible can be finger foods.
6-7 months	Meat. White fish. Green vegetables. As many of these foods as possible can be solid foods.
8 months	Bread. Family foods.
9 months	Egg yolks. Citrus fruits.

Milk and milk substitutes continues to be an important source of nutrients as the child grows. A general guideline as to amounts is

1-2 years of age	16 ounces
2-6 years of age	18 ounces
6-8 years of age	20 ounces
10-18 years of age	26-30 ounces

A general guideline to caloric intake is

1 year of age	1000 calories
2 years of age	1100 calories
3 years of age	1300 calories
etc. to teens	1900 calories
girls	2400-2700 calories
boys	3100-3600 calories

From one to three years of age the child develops definite likes and dislikes; again this is not stubbornness or misbehavior but only the establishment of an individual personality and their own preferences. Besides attitude towards food the child will be moving from complete dependency for his or her nourishment to being completely independent in the whole process of eating. Figure 4 gives a general sequential development of eating skills. Most children move from one phase to another quite easily but parents may also use the sequence as a guide in encouraging their child to the next level of skill in the process. Pleasurable interaction and conversation should continue from infancy to adulthood. "The baby" should not eat alone or in "silence".

Figure 4. Developmental Sequence of Eating Skills. (Average Levels)

Months	Eating Skills
0-4 months	Infant is nursed or fed milk, formula or milk substitute by the parents. Infant learns that meal time is one of social interaction and pleasure.
6-9 months	Infant holds, sucks and bites finger foods.
9-12 months	Infant holds own bottle (if bottle fed). May have given up bottle or breast-feeding. Eats most table food especially those that are finger foods. Drinks from a cup with assistance. Holds spoon. Licks spoon after it is dipped into food.
15 months	Holds appropriate size glass 1/4 full with both hands. Spills are to be expected as child tilts the cup instead of their head. Grasps spoon and puts it in food often spilling it before it reaches the mouth.
Years 1 1/2 years	May no longer need nursing or bottle. Holds cup with both hands and lifts to mouth. Drinks well. Is apt to drop cup if nobody is there to take it. Fills spoon. Difficulty in inserting it into the mouth. Turns spoon in mouth. Considerable spilling. May hand both cup and dish to parent insisting that it be off of their eating area when they are done.

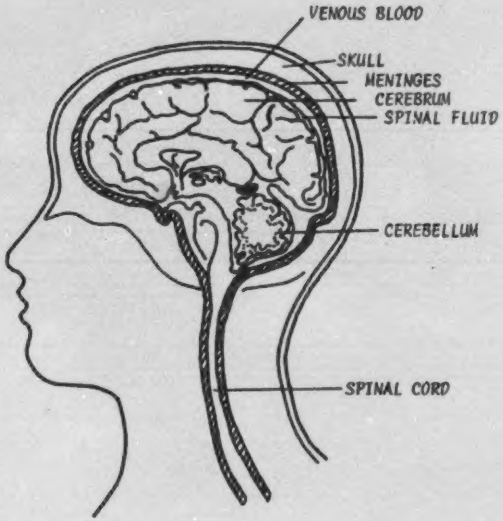
Figure 4. Developmental Sequence of Eating Skills. (Average Levels) (continued)

2 years	Holds small glass with one hand when drinking. Puts spoon in mouth without turning it. Moderate spilling. Distinguishes between food and nonedible materials. Plays with food.
2-3 years	Feeds self with occasional spilling. Uses fork. Pours from pitcher. Can obtain a drink of water from the faucet. Likes to set table. Cannot sit for "long meal".
3-4 years	Can serve self at table.
5-6 years	Uses table knife for spreading and approximates cutting.

"WHY OPTIMUM NUTRITION?"

Answer: To build the centers for learning. Intelligence and learning depend for the most part on the awesomely complex central nervous system--the brain and spinal column.

Figure 5. The Central Nervous System-Brain and Spinal Cord-With Its Four Protective Systems.



The brain is protected by three distinct protective layers--more than any other organ of the body.

1. Spinal fluid: It swims in a surrounding fluid to absorb shock.
2. Venous Blood: Protects the brain acting as a barrier.
3. Meninges: Then it is encased in a tough membrane.
4. Skull: Finally it is surrounded by hard bone.

Intelligence and learning of course are very dependent on the five senses, three of which--hearing, vision and touch--are the ways in which information about the world for the cognitive processes is received and then transmitted by nerve cells to a particular part (lobe) of the brain for interpretation and integration. Figure 6 shows the sections of the brain receiving sensory input for processing.

A larger brain in man versus other animals is a hallmark of evolution and it gave man a definite advantage down through the ages affording him a greater opportunity for survival than did his earlier smaller brain. Since the birth process could not take place if humans possessed their full size brain at birth the evolutionary solution was to delay the majority of brain development until after birth. The brain of the infant triples in size the first year of the infant's life. Lets look at this amazing brain cell . . . one of the billions.

Figure 6. Sections of the Brain Receiving Sensory Input for Processing.

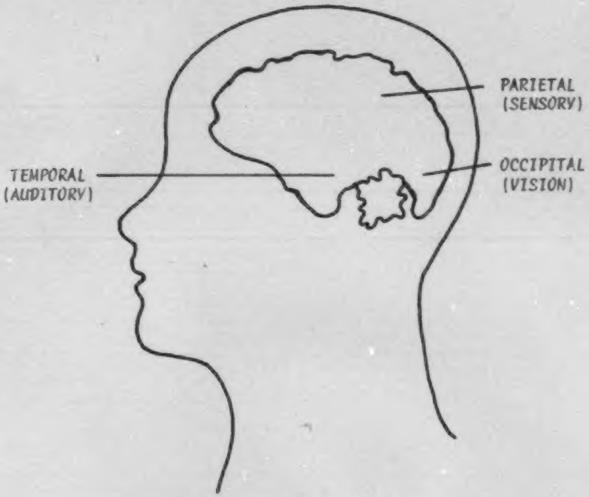
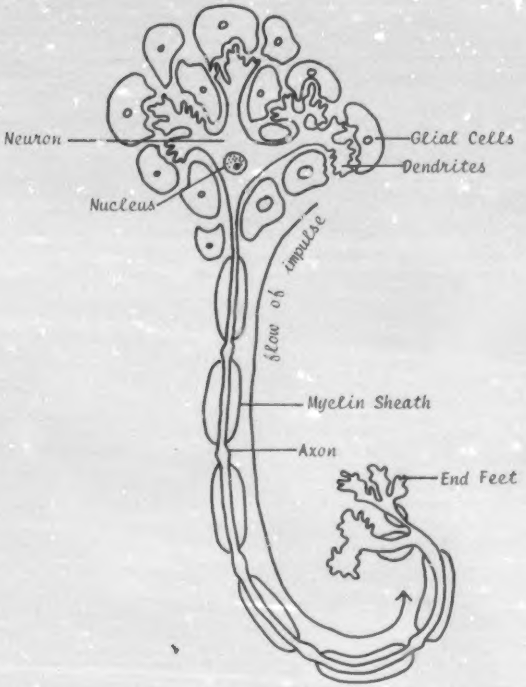


Figure 7. The Neural Cell of The Brain and Spinal Cord.


Neuron
Glial Cells
Dendrites
Nucleus
flow of impulse
Myelin Sheath
Axon
End Feet

Neuron: Nerve cell specialized to conduct electrochemical impulses over a substantial distance. Neurons do not move around and cannot replace themselves.

Nucleus: Control center for the cell.

Dendrite: Short, branching extension of the neuron in which the nerve pulse is generated.

Glial cells: Nurturance and maintenance cells for the neurons. These cells can move about and be replaced.

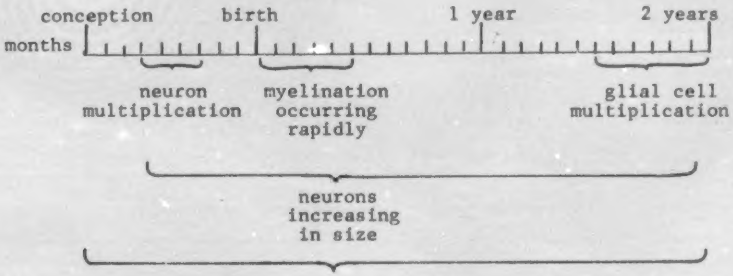
Axon: A single extension of the neuron which conducts the impulses away from the dendrite.

Myelin sheath: Protective covering for the nerve cell.

End Feet: Makes contact with other nerve cells at the dendrites.

The brain grows in spurts. Figure 8 shows the major "growth spurts" of the brain from conception to 2 years of age.

Figure 8. Brain Growth Spurts.


conception
birth
1 year
2 years
months
neuron multiplication
myelination occurring rapidly
glial cell multiplication
neurons increasing in size

A Time of Fantastic Brain Growth

1. The brain grows in spurts. Brain growth spurt #1 in months 4, 5 and 6 before birth is a time when the neurons are increasing in number with amazing speed. A small number of neurons are produced in months 7, 8 and 9 and after birth in the cerebellum and brain stem until 18 months to 2 years but the majority of neuronal division has ceased by birth. They continue to increase in size until brain growth is complete.

2. Brain growth spurt #2 from 18 to 24 months is a time when the glial cells and dendrites increase in great numbers. The neurons are increasing in size building up protein and lipid (fat) content but are not increasing in numbers. The glial cells maintain and nourish the neuron and manufacture the fatty structure myelin. Glial cells may be reproduced if they are damaged. After birth there is an increase in glial cells.

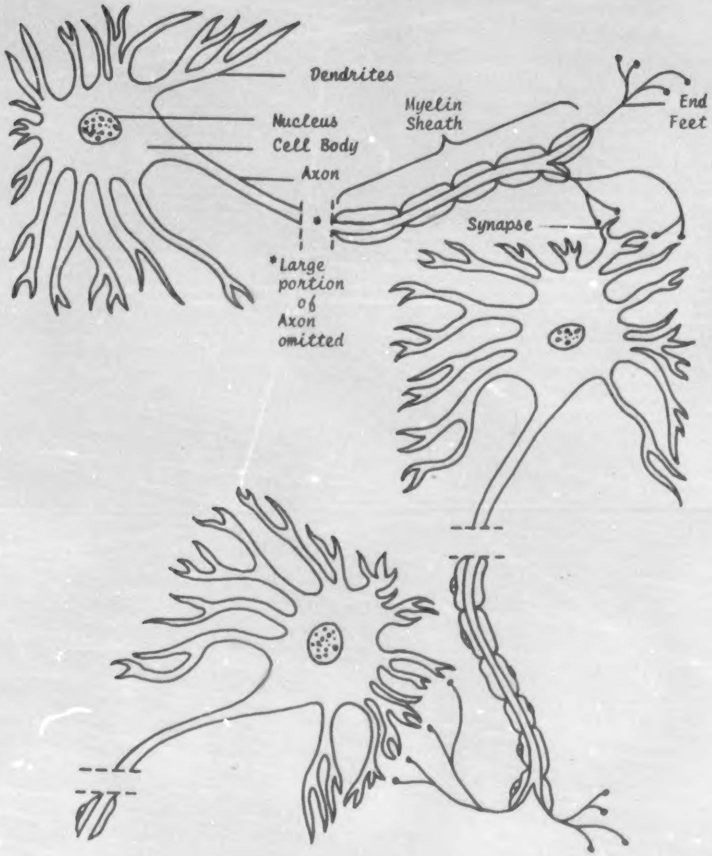
3. The protective sheath covering the axon is a thickening of the sheaths by the addition of myelin to the sheaths as the axons are growing longer. This process is called myelination. Galactose, a component of the milk sugar lactose is a vital factor in the synthesis of myelin. After myelination the brain may be somewhat immune to changes

from malnutrition for the myelin acts to protect the central nervous system. It is a metabolically stable material.

4. The brain stem's rate of cell division is quite slow but continues until 12 months of age. The cerebellum grows at a higher rate during the first brain growth spurt than the cerebrum.
5. The protein content of the brain increases twelve-fold between birth and two. The fast growth of the brain cells require a continuous supply of amino acids in the form of dietary protein.
6. The brain needs great amounts of energy for its mental life consuming 25% of the blood's oxygen even though it represents just 2% of the total body weight. The brain of an infant consumes 50% of the total blood oxygen. One and a half pints of blood flow through the brain every minute. Just 3-4 minutes without this oxygen supply can cause the demanding brain irreparable damage. It has no space for reserves. The brain uses 500 calories out of a 2,500 calorie intake mostly in the form of glucose.
7. At birth 63% of an infant's head circumference has been achieved in comparison to 30% of its height. At the end of the first year of life 70% of head growth has taken place. At 3 years of age 90% of head growth is complete while only 50% of the individual's height.

Figure 9 shows a few of the billions of neurons linked in the physical and chemical process of learning. Learning is not an abstract. This physical and chemical process can be measured and even photographed within the brain.

Figure 9. Network of Nerve Cells.



1. An optimal level of dendrite activity is crucial for the learning process.
2. This is accomplished by repeated firing of the neuron connecting it to thousands of other neurons forming associations, categorizations and generalizations by the interlinking of impulses coming in from the five senses of sight, hearing, touching, tasting, smelling into a vast network of sensory, association and motor neurons resulting in "learning."
3. Where the end feet of the neurons make contact with the dendrites of another neuron there is a jumping or synapse.
4. As nerve impulses are transmitted potassium flows out of the neuron and sodium rushes in.
5. Proper and optimum efficiency of the brain depends to a great extent on the pattern and efficiency of synaptic connections between neurons so that all the neurons of the body can communicate with one another.

NUTRITION ? RETARDATION

At this time it cannot be said that malnutrition definitely causes mental retardation for malnutrition is most often part of a triad of lack of stimulation and interaction and low socio-economic conditions which make the infant or child a target for infection. However, this shared complicity does not imply the innocence of malnutrition as a factor in the cause of mental retardation and of optimal nutrition in its prevention. We do know a number of very specific facts about the relationship of malnutrition to the central nervous system.

#1. Malnutrition, particularly protein-calorie undernutrition, is most devastating to the brain during the brain growth spurts effecting
  - the number of neurons if it occurs during the first brain growth spurt and effecting quality of the neurons and the quality and number of glial cells if malnutrition occurs during the second growth spurt.
  - the amount and quality of the myelin if malnutrition occurs immediately after birth and up to five months. Infants who have died of malnutrition may have only 40 to 50% of the normal number of brain cells for their age.

The undernourished brain is not only effected in quality and quantity of cells and myelin but in
- the balance of cells
- the function of its cells
- the axon branching of cells
- the number of dendrites
- the synapse action and interaction
- the stimulus filtering system of the brain (reticular formation).

Severe malnutrition during the critical periods of rapid cell multiplication is irreversible regardless of subsequent nutritional sufficiency. A 20% loss of neurons in the cerebrum may appreciably depress the intelligence level.

#2. Malnutrition results in the reduction of head circumference and stature if it occurs early in life.

#3. Malnutrition results in reduced lipid (fat) and protein content of the brain.

#4. The earlier malnutrition occurs the more serious the cell deficits will be. If malnourishment takes place both before and after birth cell loss can be doubled.

#5. Malnutrition results in electroencephalogram (measurement of electrical activity in the brain) abnormalities which become a semipermanent or permanent characteristic of the child's makeup.

#6. The brain appears to be more vulnerable to abnormal metabolic relationships than to absolute limitations in nutrient levels.

#7. Animal studies definitely show that malnutrition in the early months of life reduce the number of brain cells and size of brain cells, reduce myelination and result in lesions of the central nervous system cells.

#8. Animal studies also reveal that malnutrition causes behavioral and learning difficulties and that poor diet over several generations may extend beyond the malnourished parents and offspring to the second generation even though the second generation is well fed.

We also know some very specific facts about the relation of malnutrition to iron deficiency.

#1. Anemia is probably a late sign of iron deficiency for first stored iron disappears, then the iron in the blood decreases followed by a change in the number and quality of red cells. Finally anemia is manifested.

#2. A depletion of iron in the blood decreases resistance of an infant or child to infection.

#3. The red blood cells which carry oxygen to the body's cells including the brain cells which are unable to store oxygen and need a sustained oxygen supply will be lacking in quality and quantity if there is a deficiency in iron. The red pigment, hemoglobin, actually holds oxygen and carbon dioxide as it shuttles between the lungs and body parts. Red blood cells have an average life of 4 months and then must be rebuilt.

#4. Iron is crucial to every living cell. It is involved in the burning of each cell's oxygen for the production of energy. It is also a component of enzymes which regulates the life of each cell including brain cells.

IN GENERAL THE DELETERIOUS EFFECTS OF MALNUTRITION ARE MANIFESTED IN THE PERIOD OF ACTIVE BRAIN GROWTH--BRAIN GROWTH SPURTS--AND IN A LESSER WAY UP UNTIL THE AGE OF 4 WHEN METABOLIC STABILITY OF THE MYELIN SHEATHS HAVE BEEN ESTABLISHED. THE INCREASE IN CELL SIZE BUT NOT NUMBER IS ORDINARILY REVERSIBLE THROUGH NUTRITIONAL REHABILITATION. THE ADULT BRAIN CAN RESIST ASSAULT QUITE WELL WHEN IT HAS MATURED AND DEVELOPED THROUGH THE EARLY CRITICAL PERIOD WITHOUT INTERFERENCE.

MALNUTRITION

Why worry about these 12 very specific effects of malnutrition on the central nervous system?

The central nervous system controls both how we learn and how we behave. Numerous animal and human studies relate the effects of central nervous system development to deficits in learning and behavior. Parents should strive to promote the growth and development of their child's central nervous system in as whole and uncompromised state as possible so that the child will have the "physical matter" necessary to learn and behave in a way which is rewarding to the child as well as to the parents for

Malnutrition effects behavior resulting in

... reduced activity to conserve energy for "energy needs" for growth take precedent over energy for activity and play.

... less ability to attend to a central or important stimuli while masking out or disregarding other stimuli. (concentration and attention)

... decreased curiosity, motivation and desire for exploration.

... decreased profit from casual or incidental learning that is a course of daily life.

... poor integration of stimuli from the 5 senses. (sensory integration)

... apathy in the child which in turn tends to result in a parent's apathy toward the child. The child is not rewarding to the parents so the child's interaction with his or her environment is reduced for the parents give less stimulation and attention to the apathetic child. The child becomes more isolated from the world. A vicious cycle of decreased learning which is represented in figure 10.

... a loss of learning time while the child is unresponsive to his or her environment which may be during critical learning periods in the infant's and/or child's development.

... language lags.

... decreased fine motor control.

... increased irritability, agitation and over reaction.

Hunger effects behavior resulting in

... increased concern for food which interrupts the child's attention to learning tasks.

... apathy.

... a lack of initiative and motivation.

... disinterest in learning.

... increased nervousness and irritability.

Anemia effects behavior resulting in

... decreased attention span.

... decreased ability to perceive a dominant stimuli.

... less ability to carry out complex and purposeful activity.

... increased irritability.

Malnutrition effects the infant's and child's resistance to infection and disease decreasing the body's ability to develop immune systems resulting in

... gastrointestinal infections with diarrhea as a symptom which if prolonged or severe can cause neurologic defects from water and electrolyte imbalance, brain shrinkage and aggravates malnutrition. In the developing countries where such infections are very much a part of life as well as malnutrition diarrhea may be the greatest cause of mental retardation. Respiratory and gastrointestinal illness are habitual illnesses of the malnourished. Gastrointestinal infection may also interfere with the synthesis of the B vitamins. Antibiotics used to treat infections further complicate nutrition for decreased bacteria (E. Coli) in the intestines modify the production of B vitamins (which are already marginal in malnutrition) and the absorption of amino acids.

... Infection and illness which are severe destroy approximately 135 grams of body protein in a single day. When the protein intake is low and more nitrogen is excreted than is obtained in food it is an indication that the body is breaking down its own tissues in order to meet the daily demands for nitrogen distinguishes protein from carbohydrates and fat.

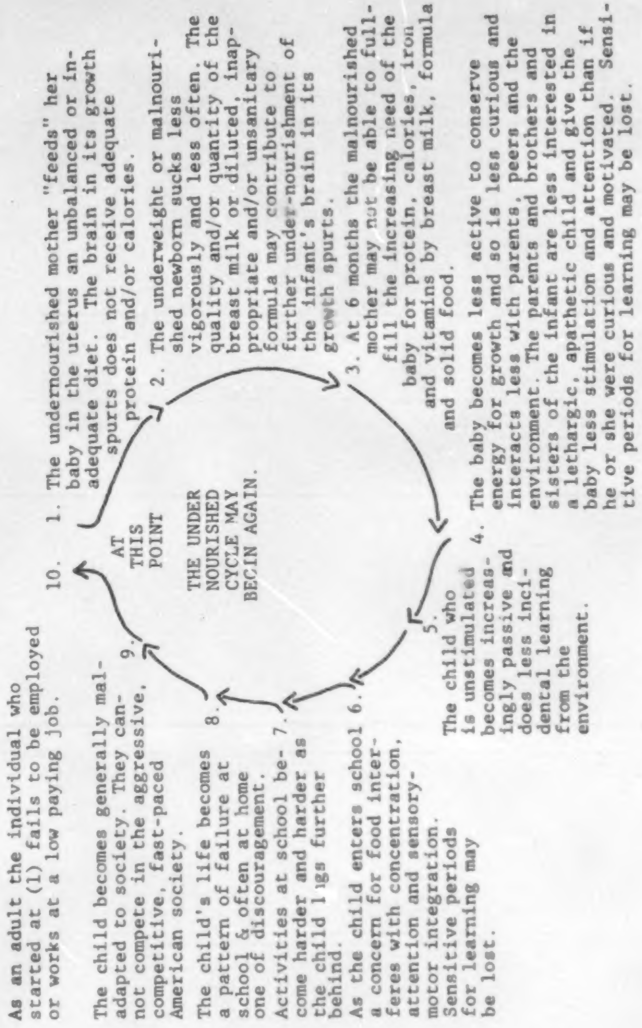
... A reduction of blood levels of vitamin A and C and increase in loss of vitamins through excretion.

... An increase in the frequency, severity and complications of infections which in turn exaggerate the effects of malnutrition.

It is not firmly established that malnutrition directly causes mental retardation but there is a clear and strong association among malnutrition, physical growth, intelligence quotient and poor school performance. The effects of malnutrition, hunger and/or anemia as already innumerated can be direct or indirect causes of mental retardation especially if accompanied by a lack of stimulation from the child's environment.

In the developing nations malnutrition puts severe and widespread constraints on these countries future intellectual, social and economic development. In the United States it means that many of our children may not be reaching their full potential because they do not have the physical matter necessary for central nervous system development and the energy needed for curiosity and motivation necessary to attend to a learning task let alone doing advanced mental skills. The cycle of hunger is represented in figure 10.

Figure 10. The Cycle of Malnutrition or Hunger Which Often Condemns a Child To Do Poorly In School.



1. The undernourished mother "feeds" her baby in the uterus an unbalanced or inadequate diet. The brain in its growth spurts does not receive adequate protein and/or calories.

2. The underweight or malnourished newborn sucks less vigorously and less often. The quality and/or quantity of the breast milk or diluted, inappropriate and/or unsanitary formula may contribute to further under-nourishment of the infant's brain in its growth spurts.

3. At 6 months the malnourished mother may not be able to fullfill the increasing need of the baby for protein, calories, iron and vitamins by breast milk, formula and solid food.

4. The baby becomes less active to conserve energy for growth and so is less curious and interacts less with parents, peers and the environment. The parents and brothers and sisters of the infant are less interested in a lethargic, apathetic child and give the baby less stimulation and attention than if he or she were curious and motivated. Sensitive periods for learning may be lost.

5. The child who is unstimulated becomes increasingly passive and does less incidental learning from the environment.

6. As the child enters school a concern for food interferes with concentration, attention and sensory-motor integration. Sensitive periods for learning may be lost.

7. Activities at school become harder and harder as the child lags further behind.

8. The child's life becomes a pattern of failure at school & often at home one of discouragement.

9. The child becomes generally maladapted to society. They cannot compete in the aggressive, competitive, fast-paced American society.

10. As an adult the individual who started at (1) fails to be employed or works at a low paying job.

These are just a few of the many factors that may be influencing the growth and mental development of the child.

If biological risks, one of them being malnutrition and/or hunger, to which children are continued to be exposed can be identified and changed there would be an opportunity to significantly reduce the learning handicap of the next generation. Existing evidence is definitely strong enough to warrant action now. Certainly there can be no negative side effects to good nutrition.

Parents must provide their child or children with an adequate diet, well prepared which takes into account the individual differences and individual biochemical makeup of their child to prevent mental retardation or learning problems in the child.

INDIVIDUALIZING THE DIET

INDIVIDUAL DIET #1. *FOR THE INFANT AND CHILD WITH AN INBORN ERROR OF METABOLISM: A DIET LOW IN THE OFFENDING NUTRIENT.*

"What is one man's meat may be another man's poison."

Inborn metabolic diseases detected by screening at birth need careful management by

1. a primary care doctor.
2. a physician with knowledge and experience in treating metabolic disorders.
3. a laboratory for monitoring the biochemistry of the infant and child.
4. a nutritionist.
5. a social worker.
6. a nurse.
7. a genetic counselor.

A hospital with a metabolic clinic should be utilized for both the parents and the child. Such a clinic can provide

1. information on up-to-date treatment.
2. monitoring of the dietary status of the infant and child.
3. emergency dietary supplies.
4. laboratory services.
5. consultation as part of a regional network serving infants, children and parents.

In Indiana such services are available at Riley Hospital Metabolic Clinic in Indianapolis.

The concern of this unit is the parent's role as dietitian in the individualization of their infant's and growing child's diet to prevent mental retardation in the child with an inborn error of metabolism. Some inborn errors causing mental retardation which can be screened in the newborn and treated by dietary management are

Galactosemia
Maple-syrup urine disease
Tyrosinemia
Histindinemia
Phenylketonuria
Valinemia
Arginosuccinicaciduria
Citrullinemia
Hyperammonia.

In each of these particular disorders an enzyme is missing or is malfunctioning and the metabolism of a particular nutrient cannot be handled properly so the nutrient or a component of it at various stages of breakdown builds up and an imbalance of partially metabolized or metabolized nutrients results. The hereditary amino acid disorders could be considered a "genetic malnutrition" in that they are gross amino acid imbalances in the body.

In each of these metabolic disorders a diet can restrict the offending carbohydrate, fat or proteins. Enough of the "offensive" nutrient must be provided for growth and development yet the intake must not permit excess accumulation of the nutrient or its breakdown products in the body. It is a delicate balance. Semisynthetic products are used plus other dietary sources of the protein or carbohydrate for normal metabolism. Supplementation of the diet with vitamins and specific metabolites is used in some of these disorders.

For the infant this means a semisynthetic fortified formula plus small amounts of milk.

For the child 1 to 6 years of age this means a semisynthetic source of the offending nutrient while introducing other foods.

Both the infant and the child must be monitored as to

1. actual dietary intake
2. blood levels of nutrients
3. nutritional deficiencies
4. signs of toxicity.

Lofenalac was the first commercial product made and widely used for dietary management of phenylketonuria. It is composed of an enzyme decomposition product of casein, corn syrup, tapioca, corn oil, minerals and vitamins. Other sources of semisynthetic products for dietary use with errors of metabolism are

Lofenal	Mead Johnson
PKU Aid	Ross Laboratories
Isomil	Ross Laboratories
3229-A	Mead Johnson
3200-AB	Mead Johnson
MSOD Aid	Ross Laboratories
Methio-naid	Ross Laboratories
3200-K	Mead Johnson
Histinaid	Ross Laboratories
80056	Mead Johnson

Parents must keep their child with an inborn error of metabolism on a strict diet from the first few weeks of life until the child can tolerate the implicated nutrient. In PKU this tolerance is at about 6 years of age but there are advantages of keeping the older child on a diet relatively low in the offending substance.

CARRY OUT INDIVIDUALIZED DIETS CAN MEAN THE DIFFERENCE BETWEEN MENTAL RETARDATION AND NORMAL INTELLIGENCE FOR THE GROWING CHILD WITH AN INBORN ERROR OF METABOLISM.

The lack of the enzyme lactase is a genetically scheduled part of a large number of babies which may not manifest itself until after weaning. The lactose in milk will cause severe diarrhea so that the child will have to be put on a milk substitute.

Another enzyme deficiency disorder common in young children is celiac's disease. The child cannot digest gluten, a protein in wheat and rye flour, causing diarrhea, growth arrest and weight loss because partially digested food, particularly fat, passes out of the body depriving the child of essential nutrients.

INDIVIDUAL DIET #2. *FOR THE LOW-BIRTH-WEIGHT INFANT: A HIGH CALORIE, SUPPLEMENTED MILK INTAKE.*

The low-birth-weight infant needs a diet that supports a rate of growth which approximates the rate of growth for the last 3 months of life in the uterus without putting undue stress on the infant's metabolic or excretion system. This is a crucial period for the underweight infant where inadequate, excesses or imbalances can effect brain and nervous system development.

Providing an adequate caloric intake is of primary importance. The underweight infant may have low stores of vitamins, defects in absorption plus a low intake of breast or formula milk because of less vigorous sucking so vitamin supplements of A, C, D, B and E may be needed. Fortification of the infant's formula or supplements for the breast fed baby of vitamin E is particularly important because of their poor absorption of it. Also calcium, sodium and copper needs may be greater than that of the normal weight baby so a balance of these nutrients must have special consideration.

INDIVIDUAL DIET #3. *FOR THE HUMAN INFANT.*

Mother's breast milk is individualized because it is made for the human infant and growing baby. It provides specific advantages and protections that cow's milk does not offer.

- Provides antibodies against E.Coli infection.
- Promotes growth of proper bacterial flora which decreases the possibility of diarrhea.
- Lack of contamination also protects against infectious diarrhea.
- The composition of breast milk is more easily digested by the infant than cow's milk with more usable protein essential vitamins and minerals.
- Contains a balance of essential fatty acids which are linked to proper myelination of the nerve cells of the brain and nervous system.
- Provides a mineral composition suited to the newborn's kidneys.
- Provides thyroid hormone (short term) for the infant who may have a deficiency.
- Does not contain nitrates. Nitrates are converted to nitrites, especially in the infant under 3 months, and interferes with oxygen being carried to all of the body cells including those of the brain.
- During the first 4 months of life breast milk maintains a balance in the infant with respect to function and chemical composition of the fluids and tissues.
- Protects against malnutrition where formula preparation would be economically prohibitive, unsanitary or liable to dilution for economic purposes.
- Provides adequate nourishment for brain growth spurts in countries where weaning is followed by undernourishment in proteins and/or calories.
- The cost of formula -- $3.68 for powdered/week to $19.71 for nursettes (ready to use in a disposable bottle)/week -- can be so prohibitive that the infant is undernourished at an early age if living in an environment of poverty.
- Insures milk which is always at the right temperature and at a constant composition.
- Provides greater opportunity for touching and body contact.

However, there are times at which nursing may not provide the infant with this nearly perfect nourishment. Some of these times are when

1. An undernourished nursing mother may be deficient in some of the nutrients found in the milk of a well nourished mother.
2. A nursing mother is using over-the-counter prescriptions or social drugs. Any drug that enters the bloodstream can enter breast milk. Figure 11 gives examples of possible drugs taken by the nursing mother which become part of the breast milk with subsequent effects on the infant.

Figure 11. Examples of Drugs Which If Taken By The Nursing Mother Enter The Breast Milk And Effect The Infant.

Drug Taken By The Mother	Effects On The Nursing Infant
Alcohol	The level in the milk will be about 90-95% of the mother's blood alcohol level.

Antithyroid Medicine	Will suppress the thyroid function in the infant.
Aspirin	Will depress platelet effect. (blood clotting)
Barbiturates	Can cause lethargy in infants.
Chloramphenicol	May harm the infant's bone marrow.
Diazepam	Causes lethargy, weight loss and jaundice in the infant.
Penicillin	May result in allergic sensitization. May result in ineffectiveness of penicillin as an antibody in child & adulthood.
Respirine	Causes lethargy, diarrhea, nasal congestion in the infant.
Sulfonamides	Results in anemia & jaundice in the infant.

3. A nursing mother whose baby has jaundice for a prolonged time which cannot be attributed to other conditions must consider that the breast milk may be causing the jaundice. Nursing may have to be given up at least temporarily. The nursing mother sometimes passes on larger than normal amounts of the hormone estrogen through the breast milk. An enzyme in the baby's liver removes this hormone but this work has to be done by the same enzymes processing bilirubin, a product of red cell breakdown (a normal process) thus bilirubin builds up and may be deposited in the brain causing damage.
4. A nursing mother should see that her infant has vitamin D supplements which is inadequately supplied in breast milk.

INDIVIDUAL DIET #4. *FOR INFANTS ON FORMULA HAVING A HIGH NITRATE CONTENT DUE TO THE WATER CONTENT OF THE FORMULA OR FOR INFANTS EATING FRESHLY PREPARED SPINACH: ELIMINATE NITRATES FROM THE DIET.*

Nitrates are part of many fertilizers. These fertilizers are part of the agriculture runoff into water supplies -- river, well and reservoir. In the body bacterial action changes the nitrates to nitrites. The nitrites have a greater attraction or affinity to the oxygen carrying component of the blood - hemoglobin. Thus it "pushes out" the oxygen which is normally carried to all cells of the body by hemoglobin. When the nitrites make up more than 70% of the total hemoglobin, death can occur from lack of oxygen to the cells. A lesser percentage may cause brain damage. If an infant or child is anemic the nitrite content of hemoglobin can cause death or a lack of oxygen to the cells at a much lower level. Another consideration is that an adult's methemoglobin, which this phenomena is called, is 1% of the total hemoglobin while in the newborn it can be 2 to 5 times this level.

Naturally occurring nitrates in beets and spinach can also be potentially hazardous for infants. Their nitrates can be converted to nitrites either before or after they have eaten. In these two vegetables nitrites oxidize iron resulting in methemoglobinemia. Hemoglobin then cannot bind oxygen.

The body chemistry of the infant from birth to one month in particular undergoes great change. In this period they have two conditions

- a strongly acid gastric juice
- a high nitrate converting bacteria count

which lead to greater susceptibility to methemoglobinemia.

When fresh spinach is used it has an enzyme which can convert nitrates to nitrites both before it is eaten and when it is stored after being cooked. Canned spinach as a commercial baby food has the enzyme inactivated and eliminates bacteria thus decreasing the nitrate content during commercial processing. Thus fresh spinach and beets may be risky food for the newborn or young infant particularly if it is prepared and then stored.

INDIVIDUAL DIET #5. *FOR AN INFANT OR YOUNG CHILD WHO HAS DIARRHEA (AS A SYMPTOM OF SOME UNDERLYING CAUSE): FLUIDS FOLLOWED BY A SOFT DIET.*

Diarrhea can be caused by

*1. a food allergy.
**2. an inability to digest lactose.
***3. a gastrointestinal infection.

* Lactose allergy or intolerance is a common cause of diarrhea. It can result in a severe imbalance of body fluid and electrolytes especially if accompanied by vomiting.

** An inability to digest lactose because of a lack of the enzyme lactase in the lining of the intestine is a common genetic defect.

*** Infections caused by a virus, bacteria or an amoebae result in an inflamed and irritated intestine which is less able to absorb food and fluids. Fluid, mainly salt and water, passes out of the body more rapidly than normal.

The younger the child the greater the threat of diarrhea resulting in dehydration and electrolyte imbalance for infants have a far greater turnover of water each day and fewer reserves in minerals and water than the older child. There may be excessive losses of water and salt resulting in dehydration.

The PARENTS SHOULD CALL A DOCTOR promptly if any of the following symptoms of dehydration are evident in the child or infant.

1. listlessness
2. lethargy
3. does not want to drink
4. a dry mouth
5. sunken eyes
6. decreased tear and urine excretion
7. weight loss

Parents should be prepared to tell the doctor the amount of fluid intake per hour and the number of fluid losses per hour.

Fluid intake should be

2 ounces/hour for an infant
4 ounces/hour for a preschooler
5 ounces/hour for a school-age child.

INDIVIDUAL DIET #6. *FOR THE ALLERGIC INFANT OR CHILD: THE ELIMINATION DIET.*

Ten to 15% of children are allergic to at least one kind of food. A food allergy may begin at any time of life but the majority are manifested between birth and 6 years of age. A food allergy may be intermittent or last a few months, a few years or a lifetime.

If allergic reactions are severe they can cause mental retardation in several ways:

1. By swelling of the respiratory tract resulting in a severe lack of oxygen to the brain with subsequent brain damage.
2. By an excess of fluids in the brain which interfere with the blood flow in the brain thus decreasing oxygen and nutrient metabolism with subsequent brain damage.
3. A hemorrhage reaction in which small hemorrhages in the brain cause brain damage.
4. A nervous system allergy can cause a child to vacillate between hyperactivity and irritability AND tiredness and listlessness.
5. By causing changes in mood and personality that interfere with learning.

These reactions may be due to food, drugs, pollen, chemicals or serums. Food is the consideration of this unit.

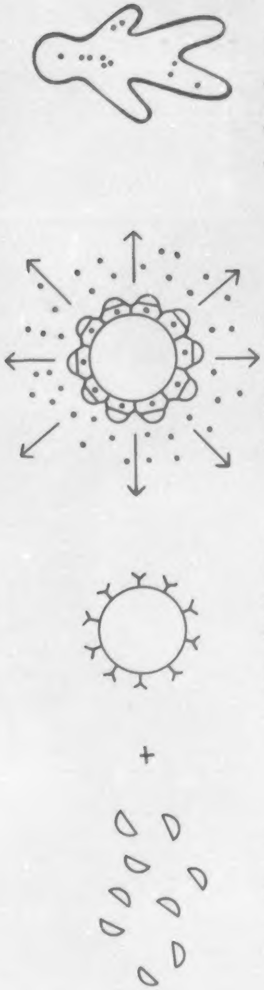
WHAT IS AN ALLERGY?

An allergy is an altered reactivity. When a person develops an allergy they develop antibodies against a substance that doesn't bother other people. They are hypersensitive to a specific substance which in similar quantity does not bother other people. An allergy can also be thought of as an inflammatory response in various parts of the body to a substance in the environment which most people tolerate without problems.

"What is The Mechanism of an Allergic Reaction?"

Figure 12 pictures an allergic reaction to a food.

Figure 12. An Allergic Reaction To A Food.



1. A food is eaten.
This food is an allergen for this individual because they over-react to this specific food.

2. The food causes the production of antibodies by an individual who is hypersensitive to this specific food.

3. Histamines (Chemicals)
   a. Serotonin
   b. Bradykinin
   c. SRS-A are released which act on
   1. Blood vessels: They dilate and fluid leaks out of them.
   2. Circular muscles: They tighten.
   3. Mucous glands: They put out additional mucous.

1, 2 & 3 cause one or more symptoms
-sneezing, wheezing
-itching, swelling, hives
-coughing
-headache
-nausea
-vomiting
-abdominal pain
-diarrhea
-constipation
Affecting
skin
respiratory tract
gastrointestinal tract
vital organs

1 & 2. A food is eaten which triggers the production of antibodies to attack the food much as it would a foreign invader.

3. The allergen and antibodies combine releasing histamines which act on various parts of the body causing a leakage of fluids from blood vessels, a tightening of the circular muscles and additional output by mucous glands.

4. These reactions can cause itching, wheezing, coughing, hives, headaches, nausea, vomiting, abdominal pain, diarrhea and/or constipation.

Not all allergic conditions involve the reaction of an allergen and antibody. Sometimes the mechanism involves the direct sensitization of a cell.

"What Are The Symptoms of an Allergic Reaction?"

The symptoms of an allergic reaction are varied and many. They vary with age, kinds and quantity of substances to which a person is exposed, length of time the food is consumed, degree of change brought about by cooking and the combination with other allergenic food.

Figure 13. Symptoms of an Allergic Reaction.

sneezing (Hay fever)
wheezing (Asthma)
coughing
itching (Eczema)
swelling (Hives)
runny nose

overactivity
fretfulness
fitful sleep
irritability

enlarged lymph gland
buzzing in the ears
deafness
dizziness
blurred vision
shortness of breath
elevation of blood pressure
swelling of voice box

abdominal pain
colic
constipation
burning urination

listless
drowsiness
fatigue
paleness
circles under the eyes

mental depression
convulsions
hallucinations
manic behavior
serious shock

death

"What Foods Commonly Cause Allergies?"

Cow's milk
Eggs
Wheat flour
Nuts
Fish (particularly shellfish)
Chocolate
Pork

Strawberries
Corn/corn products
Citrus fruit (orange, lemon, grapefruit, lime, fruit flavoring)
Spices
Peas (lentils)

In the infant the immature digestive system is not efficient at breaking down the large protein molecules found in cow's milk, wheat, corn, eggs, chocolate and legumes. The infant's intestine is more permeable to protein enhancing the opportunity for sensitization.

Cow's milk is the most common food allergen in infancy. A cow's milk allergy can lead to vomiting, diarrhea and dehydration. Breast-fed babies have fewer allergic disorders than their formula-fed counterparts. Nursing mothers should consider altering their diet if their milk is causing an allergic reaction in the infant.

Allergies to non-nutrient substances in food complicate the process of determining the specific allergen. The allergen may not be a specific food but something added to that food or growing in the food such as

... antibiotics
... pesticides
... additives
... preservatives
... tenderizers
... dyes
... mold

True control or treatment of an allergy depends on finding the offending food or foods. Early detection of a food allergy is important so that the allergy does not cause psychological problems.

In introducing foods to an infant plainer-pure foods should be used. If either of the parents are allergic or if parents want to play it safe from an allergy standpoint introduce

rice cereal	at	6 months
fruits and vegetables	at	7-8 months
beef and lamb	at	9 months
eggs	at	12 months
peas and beans (lentils)	at	1 year
citrus fruit	at	1 year
wheat and corn products	at	1 year

A child has a 50% chance of developing allergies if one parent has a history of allergies and a 75% chance if both parents have a history of allergies.

If avoidance of particular foods is necessary vitamin and mineral supplementation may be needed.

The parent will have to put the infant or child suspected of having a food allergy on an "elimination" diet to determine the allergenic food or foods. One food at a time should be eliminated until the symptoms disappear. A diet diary should be kept by the parents. It may take as long as 3 weeks without a specific food or foods for an infant or child to be free of allergy symptoms.

For parents of an infant or child with a food allergy the following free allergy booklets are valuable:

1. Soyalac, Helpful Information for Those Allergic To Milk
   Loma Linda Foods
   Medical Products Division
   Riverside, California 92505

2. Information on Heinz Baby Foods: Planning Meals for The Allergic Infant
   Consumer Relations Dept.
   Heinz
   Box 57
   Pittsburgh, Pennsylvania 15230

3. Wheat, Milk and Egg Free Recipes
   Consumer Services Dept.
   Quaker Oats Company
   Merchandise Mart
   Chicago, Illinois 60654

4. Easy, Appealing Recipes
   Mead Johnson Laboratories
   Dept. 852
   Evansville, Indiana 47721

Popular books in the area of food allergies have tended to distort the possibility both in numbers of children with food allergies and method of treatment. Diet is not the answer for all learning problems but there may be some very specific children who's allergy to one or more foods or things that are added to or find their way into food may be contributing to their hyperactivity and subsequent learning disability. For a child with a severe food allergy it has already been noted that it can lead to mental retardation.

INDIVIDUAL DIET #7. *FOR INFANTS AND CHILDREN AT RISK FOR ANEMIA: A DIET HIGH IN IRON.*

Who is at risk?

- low-birth-weight infants.
- infants with a low hemoglobin level at birth.
- an infant with blood loss before birth or during birth.
- an infant or child with a blood loss.
- an infant having an exchange transfusion.
- the infant on formula.
- infants who cannot tolerate whole cow's milk.
- children with hookworm.

The breast-fed infant has enough iron for the first 4-5 months of life while the formula-fed infant is protected by its "stores" for the first two weeks of life but they need supplements as do those at risk.

Formula-fed babies should be given an iron fortified formula. Lactoferrin, an iron binding protein in milk is more abundant in human milk. It has a role in suppressing bacterial growth in the intestine. If iron is supplemented in breast-feeding this role cannot be played.

INDIVIDUAL DIET #8. *FOR THE HYPERACTIVE CHILD: "A BLEND OF MANY CONSIDERATIONS."*

Besides considering the possibility of a specific food or foods which a child may be allergic to or an allergy to things that are added or find their way into food a parent should see that the child has a "medical workup" considering some other aspects of the child's makeup which are very closely related to food intake.

Biochemical and neurological tests which should be done for a child in whom hyperactivity is causing learning problems are:

1. A glucose tolerance test (blood sugar level measurement).
2. A charting of food intake and behavior.
3. Thyroid functioning tests.
4. Hookworm test.
5. Trace mineral, particularly calcium, sodium, potassium and magnesium level determination.
6. A determination of any vitamin deficiencies.
7. Body lead levels.
8. Iron levels.
9. Movement of skull sutures with respiration.
10. A medical history.

These tests or records coupled with a nutritional assessment and a functional assessment of auditory, visual and tactile skills should be part of a workup on every seriously hyperactive child.

The importance of major and trace minerals and vitamins in central nervous system functioning is outlined in figure 2. Food allergies are covered under Individual Diet #6. The importance of proper thyroid functioning is covered in the unit dealing with the man and woman and their role as "doctor". The problems of lead in the child's body is covered in the unit dealing with the mother and father and their role as home managers. The function of iron in the diet is outlined in figure 2. The movement of skull sutures with respiration has been discussed under premature closing of these sutures, CRANIOSTENOSIS, which is discussed in The Mother and Father of the Newborn in Volume I, The Prevention of Mental Retardation in The Next Generation. All of these factors must be considered when planning the diet, treatment and management of the hyperactive child.

Another factor, the glucose levels in the blood over a period of time (5 hours) must be looked at in the hyperactive, depressed or apathetic child. (It must also be watched for in the low-birth-weight infant, past-due infant or infant of a diabetic mother. Newborns are routinely checked for glucose levels, but a continual watch for symptoms is needed for the low-birth-weight infant, past due infant or infant of a diabetic mother.)

When carbohydrates of a high sugar content are taken into the body the Islets of Langrehan in the pancreas release insulin which lowers the blood glucose level. It is a feedback control system to attempt to keep glucose levels in the blood at a constant and acceptable level. Carbohydrates are commonly considered to be the major energy fuel. This is partially true but fatty acids make up the primary fuel reserve. When the sugar intake is high in relation to the protein and fat intake the pancreas over reacts dropping the blood sugar level suddenly. These vast fluctuations versus an even blood sugar level with a balanced carbohydrate, fat and protein intake produces some serious affects:

1. A child with a sensitive nervous system may not be able to tolerate a rapid drop in blood sugar resulting in frantic, purposeless muscular activity, and nervousness which causes further falling of the blood sugar level due to activity and stress.
2. If there is not enough sugar getting to the brain there is not enough energy available for the transmission of nerve impulses by the brain for cognitive, memory and motor skills.

For the infant who has low blood sugar levels because of pre or post maturity, low birth weight or being born to a diabetic mother the long term effects can be central nervous system damage. The infant may have seizures, be pale, sweat and have times of decreased alertness. The child's calorie intake must be increased along with the carbohydrate intake.

A blood sugar level which is fairly constant is important. One which is too high, too low or has great fluctuations over a prolonged period can cause behavior and learning problems.

INDIVIDUALIZED DIET #9. *FOR DIABETES MELLITUS AND DIABETES INSIPIDUS: A REGULAR BALANCED FOOD INTAKE FOR THE FORMER AND A BALANCE OF SODIUM AND WATER FOR THE LATTER.*

Diabetes Mellitus is a disorder (of 5% of the population) which effects an individual's metabolism and they are unable to make use of carbohydrates due to an impaired or lack of production or activity of the hormone insulin which allows movement of glucose into the cells. In the body carbohydrates are converted to glucose but the diabetic can neither burn this blood sugar for heat and energy or change it to the storage form, glycogen and thus the glucose is excreted unused. Thus no energy is getting to the body's cells including the brain even when the diabetic is eating and drinking a great deal.

Diabetes Mellitus will usually manifest itself in the child from 8 to 10 years of age. The child will have headaches, dizziness, irritability, blurred vision, nausea, vomiting, a fast heart rate, sweating and cold hands and feet (or some of these symptoms).

The diet of a diabetic child is of a normal variety of foods but extra care must be taken to have the child eat at regular times in association with regulated amounts of oral or injected insulin. If low blood sugar occurs repeatedly or over a prolonged time permanent generalized brain damage and mental retardation can result. The brain has an absolute requirement for glucose.

Diabetes Insipidus can be the result of

- an endocrine disorder
- an inflammation of the central nervous system
- a genetic disorder
- a head trauma
- a blood disorder.

Early diagnosis and treatment is essential to prevent mental retardation particularly in an infant who cannot obtain water on their own. With inadequate water intake the levels of sodium in the body are elevated causing deficits in learning and seizures. Symptoms of the disorder are

- irritability
- restlessness
- lethargy
- a temperature
- seizures.

The prevention of mental defects in the child or infant depends on immediate and proper restoration of the water and sodium balance.

Besides the individual menus several other factors of "the meal" play a part in preventing mental retardation in the growing child.

"BUYING FOOD"

The oldest, most persistent problem of mankind is the cycle of hunger, poverty and ignorance. Hunger depresses learning and physical development. Depressed learning ends in ignorance. Those who are trapped in ignorance are unemployed or employed in low income jobs. Because of a low income they are hungry, and so on, and so on. Many times the poor do not know they are malnourished because they don't know what it is to be well nourished. They are not aware that they are sick because they don't know what it is to be well. Every day is just another day to get through. Low income families usually do not have the means for maintaining even adequate nutrition. Lack of transportation severely limits shopping. Lack of knowledge makes purchase and preparation of an "individual diet" or even a balanced diet a vertual impossibility. Conditions in which the food is prepared is often unsanitary. Limited funds make it difficult to provide a diet high in proteins, calories and iron.

Prevention of Malnutrition in The Low Income Family

If the low income family has

... the knowledge that adequate nutrition is vitally important to "grow" a child that will be at least physiologically sound

... the knowledge of resources to use to adequately provide a high protein, high iron and adequate calorie diet

... and can be motivated to take advantage of the existing resources

the cycle of hunger, poverty and ignorance could be attacked at least in the United States.

Resources for good nutrition for the child of a low income family:

1. Mother's Milk. Restoring the original status of breast-feeding the first year of life can provide the young infant adequate nutrition at practically no cost.
2. The child should be given the absolute priority in food intake particularly in the first 9 months after conception and the first 2 years of life. The adult brain and nervous system can usually adjust to a low calorie, low protein diet without permanent damage while the infant and young child cannot.
3. Looking for New Sources of Protein. Parents and those working with low income families should identify sources of protein available in the stores that are appealing to their culture but at the same time provide a high protein diet particularly the essential amino acids. Such things as oil seeds and oil seed concentrates, whole grain fortified cereals and fish might be inexpensive sources of protein. It does not always take more money to eat better.
4. Take advantage of government sponsored food programs. Only 5.4 million low income individuals out of a possible 29 million participate in government sponsored food programs. Not more than 1/3 of low income children attending public schools participate in the school lunch program. Low income families can take advantage of:
   a. The Commodity Distribution Program which provides food assistance to the poor consisting of dairy products, meat and cereal supplements.
   b. The National School Lunch Program provides nutritionally balanced foods at lunch at a minimal cost

or free of charge. Besides being available at public schools, preschool low income children can participate in a minimal cost or free lunch. Also breakfast is provided in some schools serving low income children.

c. The Food Stamp Program provides bonus food stamps to low income families to help them buy larger quantities of foods on a limited income.

d. The WIC (Women, Infants and Children) Program provides supplemental nutritious food during critical times of growth and development. Available through public health or welfare agencies, food may be obtained through retail stores using a retail purchase system, by home delivery or picked up from a distribution center.

The program serves

1. Women who are pregnant or have given birth (up to 6 months) who are high risk, anemic, under or overweight or have inadequate food.
2. Infants and children from birth to five who are born to a mother who received supplements when pregnant, are anemic, are under or overweight, were underweight at birth or have inadequate food.
3. Women who are breast-feeding up to a year who fall into any of the categories in #1 or their children fall into any of the categories in #2.

The WIC program which emphasizes the relationship of nutrition to the total concept of health and also attempts to change the food habits of the low income family provides 3 types of packages on a monthly basis.

PACKAGE 1 Infants	
iron fortified infant formula	403 ounces
infant cereal	24 ounces
juice	92 ounces

PACKAGE 2 Children, pregnant women, post partum or breast-feeding	
milk (whole, skim, evaporated dry or buttermilk)	28 quarts
cheese (as a substitute for milk)	1 lb/3 qt milk
eggs	2 1/2 dozen
cereal (high in iron)	36 ounces
juice (high in C)	276 ounces

PACKAGE 3 Children with special dietary needs	
iron fortified formula	403 ounces
cereal	36 ounces
juice	138 ounces

Besides nutritional supplements the low income family should seek health care at free or low cost clinics and provide or seek enrichment of the child's social and cognitive environment. The relation between nutrition and infection has been discussed. Animal studies show that a lack of adequate enrichment or a stimulating environment even in the presence of good nutrition can result in deterioration of the brain chemistry and anatomy.

If a child feels good because he or she is neither malnourished or hungry they can say, "its a good world, I'm glad to be around to explore and investigate, to learn and to love it." The world in turn will say "you are nice to have around." The upward cycle of learning and behaving well begins.

"PREPARATION OF FOOD"

The properly chosen foods for the infant or child must be prepared in a way which will insure that it does not cause illness or poisoning in the infant or child. Figure 14 summarizes how to avoid poisoning in the process of food preparation.

Figure 14. Toxic Substances, Their Sources and How to Avoid Them In Food Preparation.

Toxic Substance	Source	Prevention of Poisoning In Food Preparation
Zinc	Galvanized ware	Avoid using galvanized containers for storing or cooking acid food and drink.
Cadmium	Plating metal	Avoid using cadmium plated containers for storing or cooking acid foods.
Copper	Copper-food contact	Avoid using copper pipes and containers in contact with acid food and drink. Copper decorations on cake should not be used.
Lead	Pesticides	Avoid using lead containers in contact with foods or for distillation.
Organic phosphorous	Insecticides	Wash or blanch foods. Do not spray near harvest time.
Chlorinated hydrocarbon	Insecticides	Wash or blanch foods. Do not spray with DDT or near harvest time.

Illnesses which are attributable to foods manifest the general symptoms of

diarrhea
fever
vomiting and
dehydration

which if prolonged and severe can result in neurological changes.

Two causes of illness attributable to food are food intoxication and food infection.

Food intoxication is caused by toxins or poisons which some bacteria release in food or by poisonous chemicals. Examples are staphylococcal intoxication and botulism intoxication.

Food infection is caused by organisms which invade the body through food and increase to large numbers. Examples are salmonellosis infection, clostridium perfringens infection and shigellosis infection.

Prevention of food intoxication and infection depends on a number of factors in the process of preparing the family's food:

1. Food should be chilled rapidly and in small quantities.
2. Foods should be cooked thoroughly and properly.
3. Cross contamination from raw to cooked foods should be avoided.
4. Sanitary cooking utensils should be used.
5. Personal hygiene must be good when handling foods.
6. Food should be protected from human and animal excretion.

7. Flies in a cooking area must be controlled.
8. Working with foods when a person has infected cuts, colds other illnesses or diarrhea should be avoided.
9. In canning correct temperatures, pressures, acidity and cooking methods should be strictly adhered to.

Pretest

Cognitive

1. The time in the life of the growing child in which protein, iron and caloric inadequacies can be the most devastating to brain development is
____ a. 0-1 years of age.
____ b. 0-2 years of age.
____ c. 0-6 years of age.

2. The percentage of American children who are severely malnourished is
____ a. 4-5%.
____ b. 5-10%.
____ c. 10-20%.

3. Four protective systems in the brain are the
____ a. pituitary, adrenal and islets of langrehan.
____ b. venus blood, spinal fluid, meninges and skull.
____ c. frontal lobe, temporal lobe, parietal lobe and occipital lobe.

4. The brain of the infant ________ in size the first year of life.
____ a. doubles
____ b. triples
____ c. quadruples

5. The neurons of the brain and spinal cord provide _______ for nerve impulse transmission.
____ a. a few circuits
____ b. many circuits
____ c. billions of circuits

6. As nerve impulses are transmitted __________ flows out the neuron and _________ rushes in.
____ a. potassium, sodium
____ b. acetycholine, protein
____ c. sodium, potassium

7. __________ is the chemical transmitter at the synapse between end brushes of the neuron and the dendrites of another neuron.
____ a. sodium
____ b. potassium
____ c. acetylcholine

8. Malnutrition may effect the __________ of the brain cell.
____ a. quality
____ b. quantity
____ c. both of the above

9. Children should not be forced to eat because it can lead to
____ a. obesity.
____ b. emotional problems.
____ c. abuse.
____ d. all of the above.

10. Solid foods should be introduced to the baby at approximately
____ a. 1 month of age.
____ b. 2 months of age.
____ c. 3 months of age.
____ d. 4 months of age.

11. A child born with phenylketonuria should be put on a special diet when they are
____ a. a few weeks old.
____ b. 2 months old.
____ c. 6 years old.

12. The low-birth-weight infant needs a diet that is
____ a. low in the offending protein.
____ b. high in acetylcholine.
____ c. high in calories.

13. Breast milk gives the specific advantages of
____ a. antibodies against E.Coli infection.
____ b. a mineral composition suited to the newborn kidneys.
____ c. both of the above.

14. Drugs which are taken by the mother who is nursing her baby
____ a. never enter the breast milk or effect the infant.
____ b. enter the breast milk but do not effect the baby.
____ c. sometimes enters the breast milk and effect the baby.

15. The __________ a child the more serious diarrhea can be as a cause of dehydration and subsequent brain shrinkage.
____ a. younger
____ b. older
____ c. neither of the above

16. In an allergic reaction _________ are released causing blood vessels to dilate, muscles to tighten and mucous glands to excrete.
____ a. antibodies
____ b. histamines
____ c. antegens

17. To determine which of many foods is causing an allergy a child must usually be put on
____ a. an elimination diet.
____ b. a PKU diet.
____ c. a diet high in iron.

18. The red blood cells which carry oxygen to the brain cells will be lacking in quality and quantity if the child has a deficiency in
____ a. stimulation.
____ b. iron.
____ c. neither of the above.

19. Nutritional deficiencies, excesses or imbalances which parents should consider in the hyperactive child are
____ a. the blood sugar level over a period of time.
____ b. mineral and vitamin imbalances or deficiencies.
____ c. both of the above.

20. In diabetes mellitus __________ can result in permanent generalized brain damage if it occurs repeatedly over a prolonged time.
____ a. low blood sugar
____ b. Islets of Langrehan
____ c. insulin

21. The family with limited buying power should
____ a. give the infant and young child absolute priority in food intake.
____ b. have the mother nurse the infant.
____ c. take advantage of government food programs.
____ d. all of the above.

22. Cooking utensils may ________ be a source of poisoning of a child.
____ a. never
____ b. always
____ c. sometimes

23. Food intoxication and food infection can result in
____ a. diarrhea.
____ b. fever.
____ c. vomit and dehydration.
____ d. all of the above.

Key: 1.b, 2.a, 3.b, 4.b, 5.c, 6.a, 7.c, 8.c, 9.d, 10.d, 11.a, 12.c, 13.c, 14.c, 15.a, 16.b, 17.a, 18.b, 19.c, 20.a, 21.d, 22.c, 23.d.

Affective Barometer

Circle the word or words which best represent the intensity of your feelings.

1. I feel that malnutrition and hunger are a problem in the United States.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

2. I feel that a diet high in protein and iron and of adequate calories is vital to brain and nervous system development and functioning.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

3. I feel that good nutrition plays an important role in the optimal development of intelligence.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

4. I feel that an individualized diet for some children can make the difference between normalcy and mental retardation for that child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

5. I feel that it is important for a parent to know some basic principles of development in the feeding of infants and growing children.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

6. I feel that I have the knowledge of how to provide a future child with adequate nutrition if I should become part of a low income family.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

7. I feel that proper food preparation is necessary to provide the child with food that is free from substances which could be detrimental to the child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

8. I feel that I want to have a future child have first priority in food consumption within my family.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

9. I feel that one of my roles as a parent would be that of dietitian.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

Mini Lecture or Presentation

One of the roles you will have to play if you become a parent is that of "Dietitian". That malnutrition singularly causes mental retardation has not been conclusively established for malnutrition is extremely difficult to separate from

... innate potential
... health of the child
... the environment of the child
... the child's relationship with his or her family and society.

However, there is a growing body of knowledge that strongly supports the belief that intelligence can be permanently impaired by inadequate protein and/or calories and iron especially in early life when the brain is growing rapidly.

Besides the importance of a balanced and adequate diet to mental development individualized diets are used as treatment for a number of conditions in childhood. If the diet in a variety of conditions is not adhered to the infant or child may become permanently retarded.

Consider some United States statistics:

... 4-5% of American children are severely malnourished - 10 to 20 million children.
... 3% of all newborns are undernourished.
... 33% of children under 6 have an iron deficiency.
... 17% of American children have abnormally low blood protein.
... there are 29 million Americans who cannot afford to buy adequate quantities of food for their families.

Don't let your future child or children be part of these statistics. It isn't good for the brain and central nervous system! Intelligence and learning depend for the most part on the complex central nervous system--the brain and nervous system.

"Labeling the Great Brain"

(Pass out a drawing of The Brain to each student made from ditto master 1.)

Let's look at and label the great brain...a magnificent center for learning but at times very vulnerable. In the labeling process you will be using your brain to take in both auditory and visual stimuli and your brain will be interpreting and integrating this information with knowledge that is already stored there.

Use transparencies prepared from number

#1, sections of the brain receiving sensory input
#2, protective systems of the brain

to illustrate the concepts which follow. Ask the students to label their drawing as you talk.

Place transparency 1 on the overhead. Intelligence and learning are of course very dependent on the five senses, three of them in particular, to receive information about the world which is then transmitted by nerve cells to a particular part of the brain for interpretation and integration just as your brain is doing now as you listen, look and write. The temporal lobe or part of the brain receives auditory stimuli, the occipital lobe processes visual stimuli, the parietal lobe processes sensory stimuli and the frontal lobe is responsible for output-speech. Each section has a specific job to do.

Place transparency 2 on the overhead. The brain is protected by the spinal fluid in which the brain "swims". The fluid absorbs shock. The venous blood flowing around the brain protects the brain acting as a blood barrier. The meninges encase the brain in its tough membrane and finally the skull surrounds all of this with hard bone.

But even though nature has provided the brain with protective mechanisms it can be very vulnerable to nutritional inadequacies. Since the birth process could not take place if a baby possessed its full head size at birth the evolutionary solution was to delay the majority of brain development until after birth. The brain triples in size the first year of life. How does it accomplish this amazing feat? By the increase in size and number of brain cells.

"Labeling The Great Brain Cell"

(Pass out ditto of The Neural Cell to each student made from ditto master 2.) Here is a very enlarged picture of that brain cell of which you have 10 billion, which must multiply and increase in size in the infant and young child to triple the child's head size in the first year of life. Again use your auditory and visual senses to label and learn about this magnificent cell. Use transparency 3, The Neural Cell to illustrate:

1. The neuron is specialized to conduct impulses over a long distance. It cannot be replaced if it is injured or killed.
2. The nucleus is the control center for the cell.

3. The dendrites are where the nerve impulses are generated.
4. The axon conducts the impulses away from the neurons to other neurons at their dendrites.
5. The glial cells nurture the neurons. These cells can be regenerated if injured.
6. The myelin sheath is a protective covering for the nerve cell.

The time of fantastic brain growth is from 6 months before birth until 2 years of age. The neurons are increasing in numbers and size as are the glial cells. The dendrites are increasing in numbers and size. The axons are growing. The protective myelin sheath begins forming at birth and continues until 4 years of age. Myelin is manufactured by the glial cells.

"The Greedy Brain"

Milk sugar is a vital factor in the production of myelin. After the billions of cells of the brain are protected by myelin the brain may be somewhat immune to changes from malnutrition for myelin is a very stable material.

The protein content of the brain increases twelve fold between birth and two. Obviously, the fast growth of brain cells requires a continuous supply of high quality protein at this time.

The brain of an infant consumes 50% of the total oxygen in the blood. One and a half pints of blood flow through the brain every 3-4 minutes.

Iron is a vital component of hemoglobin, the oxygen carrying component of the blood.

The brain uses 500 calories out of a 2,500 calorie intake mostly in the form of glucose.

"The Giant Network"

Place transparency 4, Network of Nerve Cells, on the overhead projector. Use the transparency to illustrate the concepts that follow. This is a very simplified and very magnified picture of how the billions of neurons of the brain and nervous system are connected. Learning is a physical and chemical process that can be photographed and measured chemically. It is not abstract or nonspecific. As you look at this transparency your eyes transmit the image to the occipital portion of your brain neurons of this section stimulated by this image fire connecting it with neurons in the temporal part of the brain which is receiving the auditory stimulus of my voice. This information must be interpreted by connecting with hundreds of other neurons which relate the auditory and visual stimulus to past experiences such as the learning of letters and their sounds, the meaning of words and so on.

An optimal level of firing of the neurons and transmitting and connecting impulses throughout this vast network is critical for the learning process. Where the neurons contact - end brushes to dendrite - there is a jumping of the impulse to bridge the gap between the two cells. Acetylcholine is a chemical which makes this jump possible. As nerve impulses are transmitted potassium flows out of the neuron and sodium rushes in. Nutrients are necessary for the transmission of impulses - the learning process.

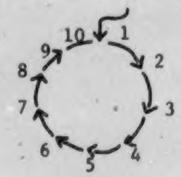
What do you suppose a lack of good nutrition can do for the brain cells in their period of great growth? Try to elicit responses using the students drawings and transparencies.

1. Limit the number and size of brain cells.
2. Limit the amount and quality of the myelin.
3. Limit the number of dendrites and the lengthening of axons.
4. Limit the transmission of nerve impulses.
5. Reduce head size.
6. Reduce protein content of the brain.
7. Oxygen supply to the brain will be lacking in quality and quantity if there is an iron deficiency. Also the enzymes which control the life of the cell will be affected.

Try to tie in and expand on logical responses.

"The Great Cycle"

We need 12 players for The Drama: Cycle of Malnutrition. Ask for volunteers or appoint students to take a part. Distribute cycle of malnutrition role cards made from dittos 3 thru 5. Have the 10 students who have role cards form a big circle so that the number of their cards are sequenced.



Instruct the extra 2 students to stand beside student number 1. Give one of these 2 students a Big M prepared from ditto 6. The "super M" stands for malnourished. "Malnourished" carries the M to each of the 10 players in the circle. As malnourished approaches each of the 10 players they read their role card to "malnourished". When "malnourished" finishes with #10 they pass the "M" on to the second extra student and then sit in the middle of the circle. This student starts around the circle. The teacher interrupts: And so the cycle of poverty continues. There is a clear and strong association among malnutrition, physical growth, learning, intelligence and poor school performance. The effects of malnutrition, hunger and/or anemia may be a direct or indirect cause of mental retardation expecially if accompanied by a lack of stimulation from the child's environment.

"Planning the Growing Child's Meal to Prevent Mental Retardation in The Next Generation"

Divide the class into 11 groups. Give each group a Situation Card made from dittos 7 through 13. Give each group time to prepare their "situation". Encourage imagination and dramatization.

Each situation will illustrate how the parent's role as dietitian must be taken seriously if mental retardation is to be prevented in the growing child. Each group is going to dramatize a situation in which the infant or child can become mentally retarded or have learning problems if the parents do not take their responsibility in individualizing the child's diet. Let me know if you need help or ideas for your dramatization.

"I will react to each dramatization. Ready group 1?"

SITUATION CARD #1	Feeding of the Normal Infant
Dramatize a situation in which the parents are starting their baby on new baby foods-Heinz High Protein Dinner and Heinz Cherry Custard at 3 months of age. The parents are forcing the baby to eat spoonful after spoonful becoming more angry and frustrated by the moment as most of the food is spit back out at them. Finally the baby pushes the whole feeding dish on the floor and the parents slap the infant and scream out their frustration.	

Instructor's Reactions:

1. First of all the parents need to turn meal time into a very positive situation from birth on. Food patterns and habits are formed in early life as part of an interaction between the parents and child. Foods that are essential to life and intellectual development are also a source of pleasure and security based on food habits established in infancy. This infant will likely link eating to displeasure and insecurity with ensuing behavior problems.

2. Foods are the parents to offer but the child should definitely be able to refuse the food or finish eating without being forced, threatened, bribed or conjoled into eating. Such techniques can lead to obesity, emotional problems and/or abuse.

3. An infant may just eat a few teaspoons of food. The fact that more food seems to dribble down the infant's front when feeding is first started is not usually from resistance unless the parents are forcing the infant but from the fact that the thrust of the tongue to obtain milk from the nipple "thrusts" the food out of the mouth.

   Another sign that parents may interpret as resistance comes between one and three years of age when the child develops likes and dislikes. Again this is not misbehavior but only the establishment of an individual personality and their own food preferences which should be respected by the parent.

   Besides attitudes towards food the child will be moving from complete dependency on his or her nourishment to being completely independent in the whole process of eating. (Pass out The Developmental Sequence of Eating Skills prepared from dittos 14 & 15.) Most children move from one phase to another in the development of eating skills but parents could also use the sequence as a guide in gently encouraging their child to move along in a sequential development.

4. New foods should be introduced one at a time and plain versus mixed foods should be used with no salt or sweetening added. (Pass out A New Experience-Solid Foods prepared from ditto master 16. New foods should be started at 4 to 6 months not at 2 or 3 months when there is a very minimal utilization of the food.

"Is group number 2 ready?"

SITUATION CARD #2	Feeding the Child With an Inborn Error of Metabolism

Dramatize a situation in which the parents and 3 year old child are in a car on the way to a hospital clinic 150 miles away. The child is acting up. The parents are discussing giving up their monthly visits to the clinic with their child because of all the demands and strains it puts on the family and themselves. They discuss their feelings: Is it really necessary for their child to stay on a special diet? Why must she be tested each month at the clinic? How are they going to be able to afford the child's special foods? What does it matter anyhow?

Instructor's Reactions:

1. The child in this dramatization has an inborn error of metabolism which was detected at birth by a test done in all hospitals on newborns to identify such disorders. In each of these disorders an enzyme is missing or malfunctioning and the proper breakdown of a particular nutrient-protein, carbohydrate or fat-cannot be handled properly so that the nutrient or a component of it at various stages of breakdown builds up in the body. This "buildup" can cause brain damage and mental retardation.

2. However, mental retardation can be prevented in the child by putting the infant on a diet which restricts or limits the offending food. This must be done within several weeks after birth and continue until the child is 6 years of age. There are also advantages of limiting the offending nutrient in the older child.

3. As you can begin to feel from the dramatization putting a child on a restrictive diet is not a simple task. Besides strictly carrying out the diet the parents must see that the child is tested periodically to monitor the biochemistry of their body to be sure the child is adequately nourished but without a buildup of brain damaging metabolites. This can best be done at a hospital clinic which has staff experienced in treating inborn errors of metabolism. Such a clinic exists at

   James Whitcomb Riley Hospital
   for Children
   Metabolism Clinic
   1100 West Michigan St.
   Indianapolis, Indiana

   Traveling monthly to the clinic may be a hassle but it can make the difference between mental retardation and normalcy for the child.

4. The lack of the enzyme lactase is a genetically scheduled part of a large number of babies. The lactose in milk can cause diarrhea so that the child will have to be put on a milk substitute. If prolonged and severe diarrhea is ignored the infant may have an imbalance of minerals and water and dehydration which can cause brain shrinkage and damage. The infant must be put on a milk substitute which is free from lactose.

"Group number 3!"

SITUATION CARD #3	Feeding the Low-Birth-Weight Infant

Dramatize a group of "cool" vitamins, minerals and calories grouped around a scrawny, tiny newborn. They comment on her condition. The vitamins, minerals and calories and the low-birth-weight infant dialogue and decide what special kind of diet will improve her condition.

Bring out the following points in your comments and dialogue:

1. The infant is under 5½ pounds.
2. Inadequate, excess or imbalances of minerals, vitamin and calories can effect the brain of this tiny infant.
3. Enough calories are of utmost importance.
4. Such a tiny infant may have low stores of vitamins, defects in absorption and eat less vigorously than an infant over 5½ pounds.
5. The mineral needs of the low-birth-weight infant may need supplementation.

Instructor's Reactions:

1. The low-birth-weight infant needs a diet that supports a rate of growth which approximates the rate of growth for the last 3 months of life inside its mother without putting undue stress on the infant's metabolic or excretion system. The first year of life is a crucial period of development for the underweight infant.

2. Supplements of vitamins A, C, D and E may be needed. Also calcium, sodium and copper needs may be greater than that of a normal weight baby.

3. The consultation of a physician experienced in caring for low weight infants is essential in planning the diet of a baby who did not prosper well in the uterus or was born without the advantage of a full 9 months of growth inside the mother.

SITUATION CARD #4	Feeding the Infant an Individualized Diet: Milk Made for Humans

Dramatize the following situation. A group of high powered salesmen from "Nettles Food Corporation" are flying to South America. On the plane they are planning how they will convert the poorer classes of Pelo to change from the age old "custom" of nursing their infants to use a "modern" formula, Nettles-High-Priced and High-Protein Formula! The salesmen arrive to convert Pelo to formula and millions into the profits of the Nettle Company. (This is a parady on a real-life situation - the remainder is not.) But alas the natives are educated. They do not want to be converted. In their dialogue with the super salesmen bring out the following points:

1. Human milk contains antibodies against infection.
2. Nettle's Formula ranges in price from $3.68 to $19.71 per week depending on how it is packaged. Nursing an infant costs nothing.
3. Human milk does not contain nitrates which may be found in water used in the preparation of the formula.
4. Nursing an infant provides a balance of nutrients which are important in the production of myelin, the protective covering of brain cells.
5. Milk made especially for infants has a mineral composition suited to the newborn's kidneys.
6. There is less likelihood of contamination in nursing an infant than in preparing a formula.

Instructor's Reactions:

1. The super salesmen are defeated! During the first four months of life breast milk maintains a balance in the infant with respect to function and chemical composition of the fluids and tissues.

2. Nursing an infant in low economic situations may protect against malnutrition where formula preparation would be economically prohibitive, unsanitary or liable to dilution for economic purposes.

3. There are a few situations in which nursing an infant could be detrimental.
   a. When the mother is undernourished her milk may be lacking in some of the nutrients.
   b. If the mother is using social, over-the-counter or prescription drugs they become part of the blood stream and enter the milk. Here is a list of examples of drugs which if taken by the mother enter the breast milk and effect the infant. (Pass out the list to each student prepared from ditto master 17.)

4. Also a nursing mother whose baby has jaundice for a prolonged time which cannot be attributed to other causes may have to at least temporarily give up nursing because the baby's immature liver cannot process both a hormone in the breast milk and a breakdown product of red blood cells and brain damage may result.

SITUATION CARD #5 | **Feeding Infants a Low Nitrate Diet**

Dramatize the action of a chemical-nitrate-in causing mental retardation in an infant. One person is a nitrate, another oxygen and another is a red blood cell. You may want to cut out letters to identify yourselves. Another person represents the brain. In a sequence of movements and dialogue act out the following concepts:

1. The brain loves oxygen and must have it to function normally. (The brain and oxygen hug, smile and shake hands!)
2. Nitrates taken into the body in food (spinach and beets) and in water are converted by the body into nitrites. (What actions will you use to convey this?)
3. The red blood cell, specifically the hemoglobin, usually carries oxygen to the "greedy" brain.
4. However, nitrites have a greater attraction to the hemoglobin than does the oxygen so the nitrites push out the oxygen and travel with the hemoglobin in the red blood cell to the brain.
5. Lack of its beloved oxygen damages the brain.

Instructor's Reactions:

1. Nitrates are a part of fertilizer runoff in water supplies--river, well or reservoir. Water supplies used for an infant's formula should be tested for nitrate content.
2. Beets and spinach, especially fresh versus processed have a high nitrate content. These fresh vegetables should not be used for infants and absolutely not after uneaten portions are stored in the refrigerator for reuse.
3. When nitrates are present at more than 70% of the total hemoglobin content death can occur and lesser amounts can cause brain damage in the infant.

SITUATION CARD #6 | **Feeding the Child Who is Losing Water and Minerals**

Dramatize a situation in which the mother and father of a young child are trying to decide what to do because their 3 month old baby has the flu with the typical symptoms of vomiting and diarrhea. The infant is listless and will not drink water or eat. In your dramatization emphasize the indecision of the parents, their feeling that the flu is nothing serious and their lack of knowledge in knowing what to do for their infant.

Instructor's Reactions:

1. The younger the child the greater the threat of diarrhea (and vomiting) resulting in dehydration and an imbalance of the water and mineral content of the body. The body is 61% water and 7% minerals. The ratio between the water and minerals, particularly sodium, potassium, magnesium and calcium must remain in delicate balance for proper brain function especially for the transmission of impulses in the brain.
2. Infants have a far greater turnover of water each day and fewer reserves in minerals and water than the older child.
3. For infant or child losing water fluid intake should be

   2 ounces/hour for an infant
   4 ounces/hour for a preschooler
   5 ounces/hour for a school age child.

   Clear liquids - sugar water, tea, jello and gingerale - can be given when the diarrhea is severe followed by a soft diet of bland carbohydrates.

   (Pass out Instructions for Care of The Child Who Is Losing Fluids from Vomiting and/or Diarrhea prepared from ditto master 18.)

SITUATION CARD #7	Feeding the Child a Non-Allergic Diet

Dramatize the mechanism of an allergic reaction! One of you is a food (pick any food) to which a child is allergic. When the food is eaten it produces antibodies--someone else's role. When the allergen (the food) and the antibodies "get together" they produce histamines (chemicals)--someone else's part. These histamines go to various parts of the child's body. The child--some one else's part --sneezes, wheezes, itches, coughs and has pains in the stomach.

Instructor's Reaction:

1. (Pass out An Allergic Reaction to a Food prepared from ditto master 19.) Go over the allergic reaction as outlined on the ditto.

2. Ten to 15% of children are allergic to at least one kind of food.

3. As you can see from the allergic mechanism they can cause a number of very annoying or very serious changes in the body.
   a. Swelling in the respiratory tract can cause a severe lack of oxygen to the brain with subsequent brain damage.
   b. Excess fluids in the brain can interfere with the blood flow in the brain thus decreasing oxygen and nutrient metabolism with subsequent brain damage.
   c. A hemorrhage reaction causes small blood clots in the brain resulting in brain damage.
   d. A nervous system allergy can cause a child to vacillate between hyperactivity and irritability AND tiredness and listlessness.
   e. Changes in mood and personality that interfere with learning.

   These reactions may be due to food, drugs, pollen, chemicals or serums.

4. Here is a list of foods which cause allergic reactions and a listing of the great variety of symptoms of an allergic reaction. (Pass out The List of Foods Which Commonly Cause Allergic Reactions and Symptoms made from ditto master 20.

5. Breast-fed babies have fewer allergic disorders than do formula-fed babies because the infant's immature digestive system is not efficient at breaking down large protein molecules found in cow's milk.

6. The parents of an infant or child suspected of having a food allergy should put the child on an elimination diet under a doctor's supervision to determine the food to which the infant or child is allergic. One food at a time should be eliminated until the symptoms disappear. A diary of food intake, behavior and symptoms should be kept by the parents. It may take as long as 3 weeks without a specific food or foods for an infant or child to be free of allergy problems. Then the offending food must be eliminated from the diet of the infant or child.

SITUATION CARD #8	Feeding a Child a Diet High in Iron

Dramatize the importance of iron in the diet to the brain! One of you is iron, another hemoglobin, another oxygen. Someone is the brain. If you have enough people left they can be poor appetite, fatigue, lowered resistance to infection. With dialogue and actions dramatize the following: Iron is part of hemoglobin. (The two shake hands, hug, smile!) The hemoglobin carries oxygen to the brain. (What actions will you do?) Without oxygen at an optimal level brain damage will occur. If there is not enough hemoglobin in the blood from lack of iron it cannot be an efficient oxygen carrier. As if that is not bad enough fatigue, poor appetite and infection will attack.

Instructor's Reactions:

1. 33% of children under 6 in this country have low hemoglobin.

2. Low-birth-weight infants, infants or children with blood loss, an infant having an exchange transfusion, an infant on formula or who cannot tolerate whole cow's milk and a child with hookworm are all at risk of being anemic. Also those children who generally have a low protein diet are at risk.

3. Iron fortified formula should be used for bottle-fed infants. Foods high in iron should be part of a child's diet...enriched cereal, liver, meat, dried peas and beans, shellfish, whole grains, dark green, leafy vegetables.

SITUATION CARD #9	Feeding the Child Who is Hyperactive

Dramatize a dialogue between two sets of parents who are discussing putting their hyperactive child on a diet. One set of parents believe a diet low in sugar, wheat flour, food additives and dyes is a cure-all for all hyperactive children. The other parents disbelieve everything they read and hear about the use of diet in the control of behavior.

Instructor's Reactions:

1. Nutritional aspects of a hyperactive child should be considered but only as one of many possible factors contributing to hyperactivity.

2. Nutritional deficiencies, excesses or imbalances which parents should consider in the hyperactive child are:
   a. the blood sugar levels over a period of time.
   b. a food allergy or an allergy to things added to food.
   c. mineral imbalances.
   d. vitamin deficiencies.
   e. iron deficiency.

3. A few words of explanation about blood sugar levels. If there is not enough sugar getting to the brain there will not be enough energy available for the transmission of nerve impulses by the brain for learning. A blood sugar level which is fairly constant is important. One which is too high, too low or has great fluctuations over a long period can cause behavior and learning problems.

SITUATION CARD #10	Feeding the Child Who is Diabetic

Dramatize a doctor talking to a teenager and his parents. They have just learned that the teenager has Diabetes. The teenager is worried about what effect Diabetes will have on the sports he participates in. The parents want to know if their teenager can still eat all the foods that he loves. The doctor is concerned with keeping the disease under control in his young patient. Work up a dialogue among the doctor, the teenager and the parents bringing out the following concepts:
1. About 5% of the population has Diabetes Mellitus.
2. No matter how much the diabetic is eating or drinking he is not getting energy into the cells of the body including brain cells unless he has supplements of insulin.
3. The hormone insulin allows the movement of glucose from carbohydrates and protein to move into the cells and be utilized.
4. The diet of a diabetic is of a normal variety but it must be a balanced diet and be eaten at regular times along with regular supplementation of oral or injected insulin.

Instructor's Reactions:

1. The diabetic is unable to make use of carbohydrates due to an impaired or lack of production or activity of the hormone insulin. In the body carbohydrates are converted to glucose but the diabetic can neither burn this blood sugar for heat and energy or change it to the storage form, glycogen and thus the glucose is excreted.

2. If a child is to have Diabetes it usually causes some symptoms between 8 to 10 years of age. These symptoms are headaches, dizziness, irritability, blurred vision, nausea, vomiting, a fast heart rate, sweating and/or cold hands and feet.

3. If low blood sugar occurs repeatedly or over a prolonged time permanent generalized brain damage can result. The brain has an absolute requirement for glucose.

"Buying the Growing Child's Meal
to
Prevent Mental Retardation in The Next Generation"

There are 29 million Americans who cannot afford to buy adequate quantities of food for their families. These poor families have 3 to 5 times the incidence of mentally retarded children than the more affluent. For the majority of us who have not experienced even prolonged hunger let alone malnutrition it is very difficult if not impossible to identify with the immensity of the problem of malnutrition even in the United States or to see it as a cause of possible mental retardation, lessened learning potential or behavior problems.

Many times the poor do not know they are malnourished because they don't know what it is to be well nourished. If you should ever find yourself part of a low income family:

"Prevention Possibilities for Those With Limited Buying Power"

1. See that the mother of your child nurses her baby
   or
   nurse your baby.

2. Give your child absolute priority in food intake. The adult brain and nervous system can usually adjust to a low calorie, low protein diet without permanent damage while the infant and young child cannot.

3. Look for sources of protein in the stores that are of high quality but inexpensive. In addition to animal and animal products such things as oil seed concentrates, oil seeds, whole grain cereals and breads, fish, peanut butter, peas and beans and nuts should take preference over carbohydrates and fats.

4. Take advantage of all the government sponsored food programs that are available. (Pass out Government Sponsored Food Programs prepared from ditto masters 21-22.) Go over each of the 4 government sponsored food programs.

If your child feels good because he or she is neither malnourished nor hungry they can say, "it's a good world, I'm glad to be around and investigate, to learn and love it." The world in turn will say, "you are nice to have around." You will have done much to allow your child to escape from the viscious cycle of poverty.

"Preparing the Growing Child's Meal
to
Prevent Mental Retardation in The Next Generation"

"Cooking Utensils and Sprays"

The properly chosen foods for the infant or child must be prepared in a way which will insure that it does not cause poisoning of the child and brain damage from heavy metals. (Pass out Toxic Substances, Their Sources and How to Avoid Them in Food Preparation prepared from ditto master 23.) Go over the toxic substances, sources and prevention of poisoning in food preparation from the sources.

"Food Preparation Skills"

Illnesses which are linked to careless practices in food preparation are

1. Food intoxication which is caused by poisons which some bacteria release in food or by poisonous chemicals.
2. Food infection which is caused by organisms which invade the body through food and increase in large numbers.

Either of these can manifest the symptoms of diarrhea, fever, vomiting and dehydration which if prolonged and severe can result in neurological damage.

(Pass out Preparing Food Free From Infection and Intoxication prepared from ditto master 24.) Go over each of the 9 points.

In your role as dietitian as a parent you must take the responsibility of

1. Planning the diet of your child whether it be a balanced diet high in protein and iron and of adequate calories or an individualized diet suited to the specific needs of the child.

2. Buying the foods needed to provide for optimum brain and neurological development even if that means taking advantage of Government Food Programs.

3. Preparing the food in such a way that it is not contaminated with toxic substances that could cause or result in brain damage.

4. Making meal times from birth through eighteen one of pleasant interaction and conversation.

By taking these 4 responsibilities you will have given your child, a growing organism, the nutrients necessary for optimum development of the brain and nervous system and helped to prevent mental retardation in the next generation.

☐ **Classroom Experience Options**

1. Show a film to introduce an area of study, emphasize a concept or to affect the feelings of the students.

   a. Title: Children In The Balance: The Tragedy of Biafra CS-1957
   Time: 60 min. black & white film
   Content: Focuses attention upon the Biafran children who are dying from starvation and malnutrition. Points out that the amount of food (1000 tons a week) delivered to Biafra must be increased to 1000 tons a day in order to prevent and curtail starvation.
   Available from: ⊕ 18 Rental: $15.25

   b. Title: PKU-Preventable Mental Retardation A-686
   Time: 15 min. color film
   Content: A discussion of the prevention of mental retardation in certain children by use of a urine test during infancy.
   Available from: ⊕ 16

   c. Title: PKU: Detection in Oregon
   Time: 18 min. color film
   Content: Shows actual phenylketonuria (PKU) cases in Oregon. Illustrates that if PKU test is administered at an early age, this form of mental retardation can be prevented with a special protein diet. Also demonstrates that if case has already become advanced, retardation can be reduced with the diet.
   Available from: ⊕ 16

   d. Title: PKU-Preventable Mental Retardation (2nd Edition)
   Time: 16 min. color film
   Content: Shows how mental retardation due to phenylketonuria (PKU) can easily be prevented when diagnosed soon after birth. A series of case histories emphasized the need for checking all infants for PKU. Includes data on incidence of the disease and reports on tests. Also available in Spanish.
   Available from: ⊕ 12 Rental: $12.50

e. Title: Two PKU Sisters In Hawaii: Diet and Progress
Time: 5 min. black & white film
Content: These two sisters were diagnosed in 1964 by the Children's Health Services Division, Hawaii State Health Department, and were immediately placed on a low phenylalanine diet. Shows the children in 1964, 1965, and in a feeding and play situation in 1966.
Available from: 11

f. Title: PKU
Time: 20 min. color film
Content: Demonstrates screening, diagnosis, and treatment of a baby with phenylketonuria (PKU). A short segment of the film shows and describes an undiagnosed and untreated PKU child, to show the contrast between an untreated child and one receiving treatment at a clinic.
Available from: 2

g. Title: Phenylketonuria: Interdisciplinary Approach To Diagnosis and Treatment
Time: 18 min. color film
Content: Provides general information about PKU, with particular emphasis on dietary treatment and regular biochemical monitoring. Developed primarily for training nutritionists, medical students and nursing students, but is appropriate for all disciplines and parents of children who have PKU.
Available from: 2

h. Title: Joy of Nursing
Available from: 1

i. Title: Breast Feeding
Available from: 1

j. Title: Breast Feeding Your Baby
Available from: 1

k. Title: Infant Care A-233
Time: 9 min. color film
Content: Shows simple things any mother should do during the prenatal period and through infancy to have strong sturdy children. Points out three critical periods in a baby's early life when food is of vital importance-while growing in the mother's body; while nursing; and when diet is changed from liquid to solid.
Available from: 16

l. Title: Feeding Your Baby Through The First Year
Available from: 1

m. Title: Feeding Your Young Children
Time: 13 min. filmstrip-60 frames
Content: To help parents understand children's food needs based on age, body build, activity, rate of growth, etc. To provide guidelines for parents to follow in helping their children learn to eat well and to feed themselves. To help parents understand why some common feeding problems arise. To show parents how to handle feeding problems if they arise so they do not progress into poor eating habits and lead to more serious problems.
Available from: 7

n. Title: Feeding Your Young Children F609
Time: color filmstrip
Content: This filmstrip gives parents of preschool children practical guidelines on building positive attitudes toward food. The small child's developmental needs are included. It may be correlated with the booklet, Food Before Six.
Available from: 7

2. Use some of the following pamphlets:
- to supplement information given in class.
- to use for student projects such as reporting on a specific subject.
- to use instead of a specific area covered in the mini-presentation.

a. Malnutrition, Learning, and Behavior
Available from: 1

b. Facts About Nutrition DHEW Pub. #(NIH) 73-423
Available from: 1

c. Key Nutrients
Available from: ✪ 3

d. Nutrition Quiz 566G
Available from: ⬡ 6

e. What the Brain Tells the Muscles ADM 77-396
Available from: ✪ 2

f. Mapping Brain Activity by Measurement of Local Brain Metabolism ADM 77-353
Available from: ✪ 2

g. Synthesis of Protein
Available from: ⬡ 8

h. Proteins, Carbohydrates, Fats, and Fibers 567G
Available from: ⬡ 6

i. A Primer on Dietary Minerals 569G
Available from: ⬡ 6

j. Vitamin E-Miracle or Myth? 570G
Available from: ⬡ 6

k. Myths About Vitamins 568G
Available from: ⬡ 6

l. What About Vitamin C? 571G
Available from: ⬡ 6

m. Food...From Birth to Birthday B205
Available from: ⬡ 22

n. Food Before Six B005
Available from: ⬡ 22

o. Food For Your Baby's First Year
Available from: ✪ 3

p. As The Child Grows
Available from: ⬡ 16

q. Good Foods to Grow On...A Guide to Infant Nutrition for WIC Recipients
Available from: ⬡ 13

r. Planning Baby's Meals
Available from: ⬡ 11

s. Better Food Better Children
Available from: ⬡ 16

t. Nutrient Requirements in Adolescence #(NIH) 76-771
Available from: ✪ 1

u. Food Allergy #75-533
Available from: ✪ 1

v. Allergy in Children
Available from: ⬡ 3

w. Questions and Answers About Asthma and Allergic Diseases
Available from: ⬡ 3

x. Soyalac
Available from: ⬡ 19

y. Insulin: Its Modern Manufacture
Available from: ⬡ 8

z. Insulin: A Hope for Life
Available from: ⬡ 8

z-1. The Early Story of Insulin
Available from: ⬡ 8

z-2. You and Food Stamps
Available from: ✪ 5

z-3. Can Your Kitchen Pass the Food Storage Test? 556G
Available from: ⬡ 6

z-4. Food Safety for The Family 557G
Available from: ⬡ 6

3. Have several students interview 50 students who are not studying the prevention of mental retardation asking them if they believe or do not believe that malnutrition can cause mental retardation in the growing child. Report the results to the class.

4. Under the direction of the biology or science teacher do an animal experiment which illustrates nutritional deficiencies.

5. Have 5 students who have skipped their last meal and 5 students who have not discuss their own feelings about hunger, tiredness, lack of energy, thoughts about food, and so on.

6. Have students list foods which are very satisfying to them. Then have them categorize these foods under protein, carbohydrate and fats. Draw some conclusions about the balance of their intake.

7. Have several students prepare a "Collage of Malnutrition" from old National Geographic Magazines.

8. Invite a speaker from LaLeche League to inform the class of the advantages of breast-feeding.

9. Invite a nurse to explain the composition and purposes of various formulas to the class as well as demonstrating formula preparation.

10. Invite the mother of a small infant to class to show the students the process of feeding a baby. Relate this experience to the frustrations they might encounter in feeding, when to introduce solid foods and the quantities children eat at various ages.

11. Have one or two students interview a local pediatrician to find out what information he or she gives to parents of infants and young children concerning nutrition.

12. Ask a dietitian from a local hospital to speak on feeding the underweight infant and on the PKU diet for the infant and growing child.

13. Invite the dietitian who works for your school system to talk about the philosophy, operation and advantages of a School Lunch Program.

14. Ask the school dietitian to analyze a one day food intake of food for students from different cultural backgrounds as to the nutritive content.

15. Ask students who have allergies to discuss symptoms, causes and treatment of their allergies in a panel discussion.

16. Taste milk substitutes in the classroom (obtained from the local drug store or from a pediatrician) which are used for infants allergic to milk or who have a lactase deficiency.

17. Have a student who is a diabetic inform the class of how it affects their life in relation to eating, exercise and medication.

18. Invite a person from your local welfare office to speak about what services they provide for the poor to obtain adequate nutrition.

19. Have the students keep a notebook of handouts for future reference as a parent.

Outside Classroom Experience Options

1. Visit a WIC (Women, Infant, Children) Feeding Program in your community to find out how and for whom this government food supplementation program operates. Call the Department of Public Welfare to determine where the programs are located.
2. Visit a welfare office to interview the Head of School Services as to what government food sponsored programs are available in your community and how they work.
3. At a grocery store have different groups of students tabulate sources of foods and their price which are high in protein and high in iron. Encourage them to look for unusual sources of protein and iron. With this information have them put together a 5-day menu for a low income family.
4. Have students see if they can find any of the medicines given in figure 11, drugs which if taken by the nursing mother enter the breast milk and effect the infant, in their medicine cabinet at home.
5. Ask students to see if they can find any cooking utensils in their homes that contain copper, zinc or cadmium. Have students from farms tabulate pesticides or insecticides that are used at their farm containing lead, phosphorous or chlorinated hydrocarbons.
6. Visit a state institution or facility for the retarded to observe an individual who was not put on a PKU diet. While there observe children considered to be hyperactive.
7. Have students tabulate the additives on the labels of 15 foods at home. Discuss the relation of allergies to additives.
8. Write to the . . . U.S. Department of Health, Education and Welfare
   Public Health Service
   5600 Fisher Lane
   Rockville, Maryland 20852

   for a list of foods which are free from additives. Have a small group of students plan 3 meals for a grade school age student which is free from additives.

9. Have several students prepare recipes from . . .

   Wheat, Milk, Egg Free Recipes
   Quaker Services Department
   Quaker Oats Company
   Merchandise Mart
   Chicago, Illinois 60654

   and share product with the class for comments and discussion.

Action Checklist

Pass out an Action Checklist to each student prepared from dittos 25-28. Use it as a summary of the role of the parents as "Dietitians" in the prevention of mental retardation in the growing child. Go over each point to be sure it was covered in the classroom presentation.

If I am a parent:

____ My infant and/or young child will have first priority in food comsumption in our family.

____ I will be sure that my child receives adequate protein, calories and iron especially from birth to 2 years of age when "brain growth spurts" are taking place.

____ (Boys only!) I will encourage the mother of my child to breast-feed my infant.

____ (Girls only!) I will breast-feed my infant.

____ (Girls only!) If I am nursing my infant I will make sure that I limit or not use social drugs or over-the-counter drugs and use prescription drugs only with advice from a physician who considers its effects on the nursing infant.

____ (Boys only!) I will encourage the mother of my child to carry out the action above.

____ (Girls only!) If my infant is jaundiced from an inability to handle a hormone in breast milk I will give up nursing my infant at least temporarily.

____ (Boys only!) I will encourage the mother of my infant to carry out the action above.

____ If my infant is of low birth weight (under 5½ pounds) I will see that she or he receives vitamin, mineral and calorie supplements to their primary milk intake.

____ I will provide my infant with supplements of vitamins and/or minerals and particularly iron that are appropriate to his or her type of milk or milk substitute intake and individual deficiencies or risk.

____ I will have the nitrate content of my water supply checked before using it in formula.

____ I will not feed my infant fresh beets or spinach.

____ I will introduce foods to my infant one at a time beginning at about 4 months of age and not become upset if more "dribbles out" than stays in the baby.

____ I will establish sound nutritional patterns in my infant.

____ I will make mealtime from infancy to adulthood a pleasurable time allowing for interaction and conversation between myself and my child or children.

____ I will not force, plead, beg or bribe my child or children to eat but give them the freedom to eat just until their hunger is satisfied allowing for individual likes and dislikes in food.

____ I will see that my child or children have an "individualized diet" if it is necessary for good mental and physical development.

____ If my child has an inborn error of metabolism I will secure the consultation of a clinic and physician experienced in treating children with genetic disease.

____ I will see that my child strictly follows a diet which is restricted in a particular nutrient if the child has a genetic disease treatable by diet.

____ If my infant or child has diarrhea I will feed them a clear diet, followed by soft foods and have a physician determine the underlying cause of the diarrhea if it is serious or prolonged.

____ If my child has a symptom or symptoms of an allergic reaction I will consider food as a possible cause and put my child on an "elimination diet" under the direction of a physician.

____ If I have a child whose hyperactivity is causing learning problems I will see that they have a biochemical workup and nutritional assessment as part of their total diagnosis.

____ If my infant has seizures, paleness, lethargy and excessive sweating I will make sure that the physician considers the child's blood sugar level as an underlying cause of these symptoms.

____ If my child has Diabetes Mellitus I will see that she or he eats balanced and regular meals.

In preparing food for the family I will:

____ Cook foods properly and thoroughly in sanitary cooking utensils.

____ Chill food rapidly and in small quantities.

____ Protect foods from human and animal excretion and from fly contamination.

____ Use good personal hygiene and not allow persons with infected cuts, colds, intestinal disorders and other illnesses to prepare food.

____ Not mix raw and cooked foods when storing.

____ Follow correct temperature, acidity, pressure and cooking guidelines in canning.

____ Avoid using galvanized, lead, cadmium or copper containers for cooking or storing acid foods and drinks.

____ Wash or blanch fresh fruits and vegetables.

____ Do not spray gardens with insecticides near harvest time or use DDT.

____ If I become part of a low income family I will take advantage of the Commodity Distribution Program, The National School Lunch Program, The Food Stamp Program and The WIC Program to provide a high protein, high iron and adequate calorie diet for my infant and child.

____ If I become part of a low income family I will nurse my child or as the father of the infant encourage the mother to nurse the child, give my child absolute priority in food intake and buy inexpensive sources of high quality protein at the store for my child.

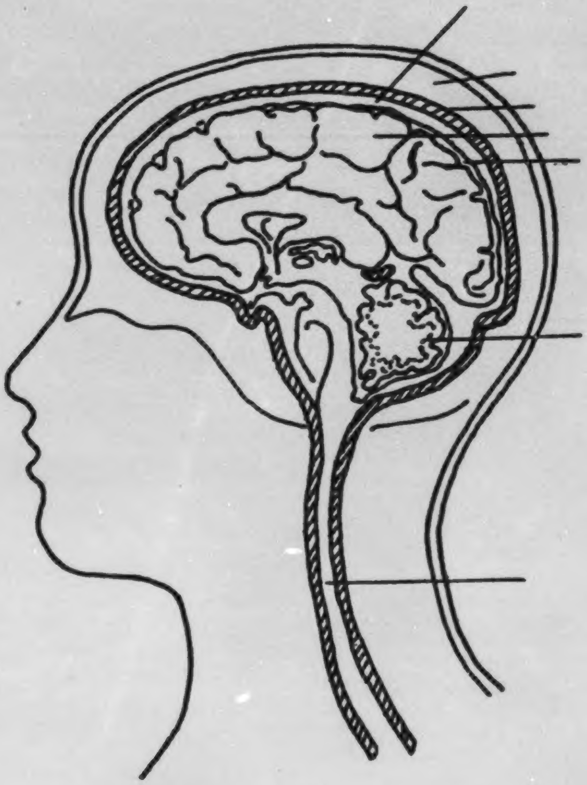
Post Test

Use the same test as for the pretest. Have the students take it in class or as homework. Let them compare their gains.

I. The Dietitian

Ditto 1

The Brain



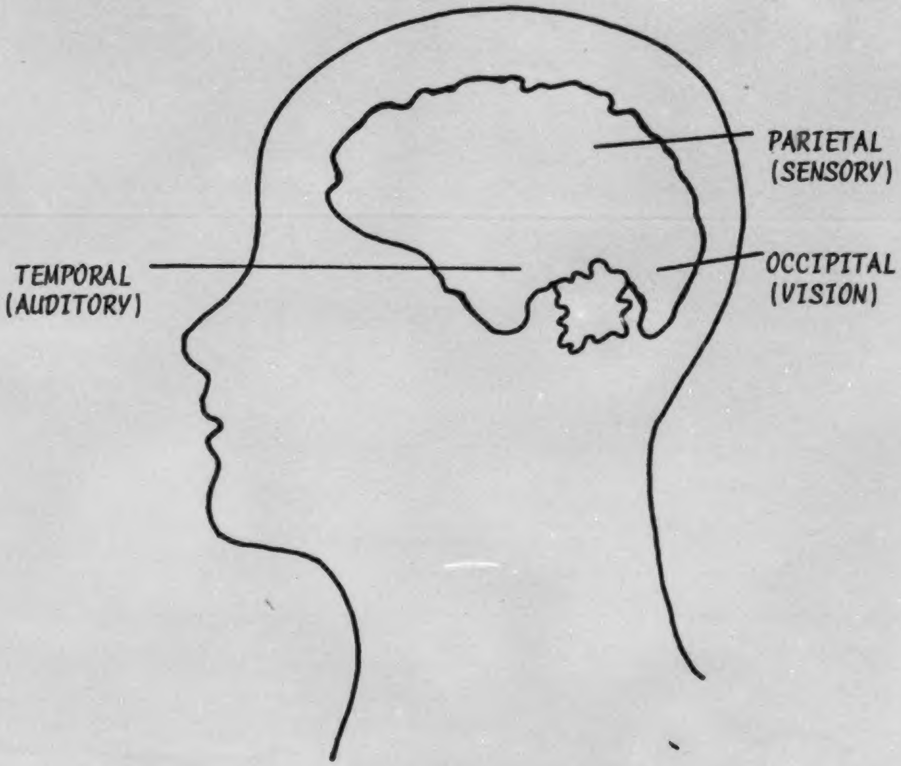
The brain is protected by three distinct protective layers--more than any other organ of the body.

1. Spinal fluid: It swims in a surrounding fluid to absorb shock.
2. Venous Blood: Protects the brain acting as a barrier.
3. Meninges: Then it is encased in a tough membrane.
4. Skull: Finally it is surrounded by hard bone.

I. The Dietitian

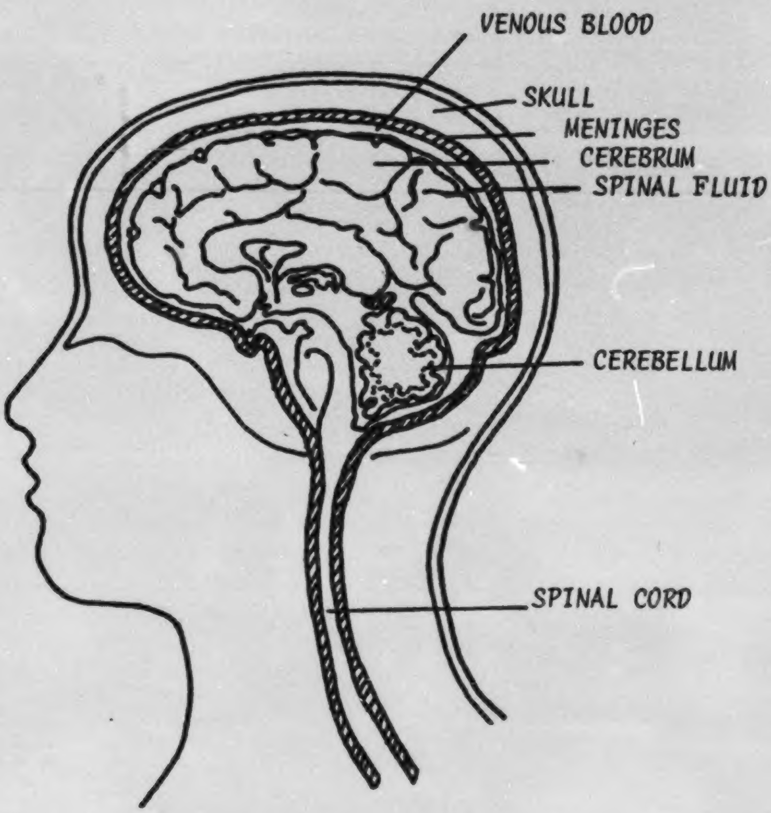
Transparency 1

Sections of The Brain Receiving Sensory Input


PARIETAL
(SENSORY)
TEMPORAL
(AUDITORY)
OCCIPITAL
(VISION)

Transparency 2

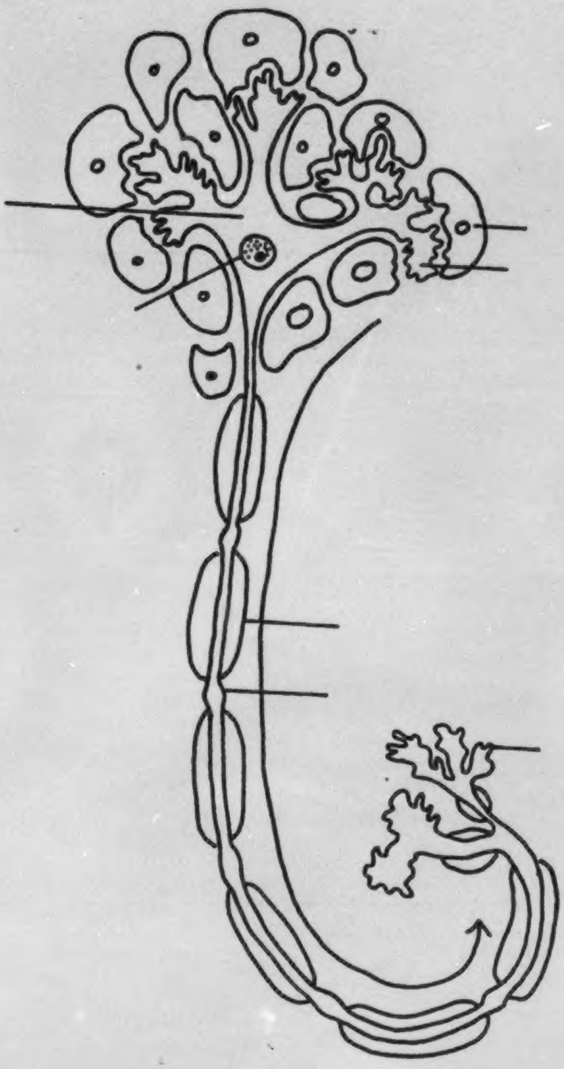
Protective Systems of The Brain


VENOUS BLOOD
SKULL
MENINGES
CEREBRUM
SPINAL FLUID
CEREBELLUM
SPINAL CORD

I. The Dietitian

Ditto 2

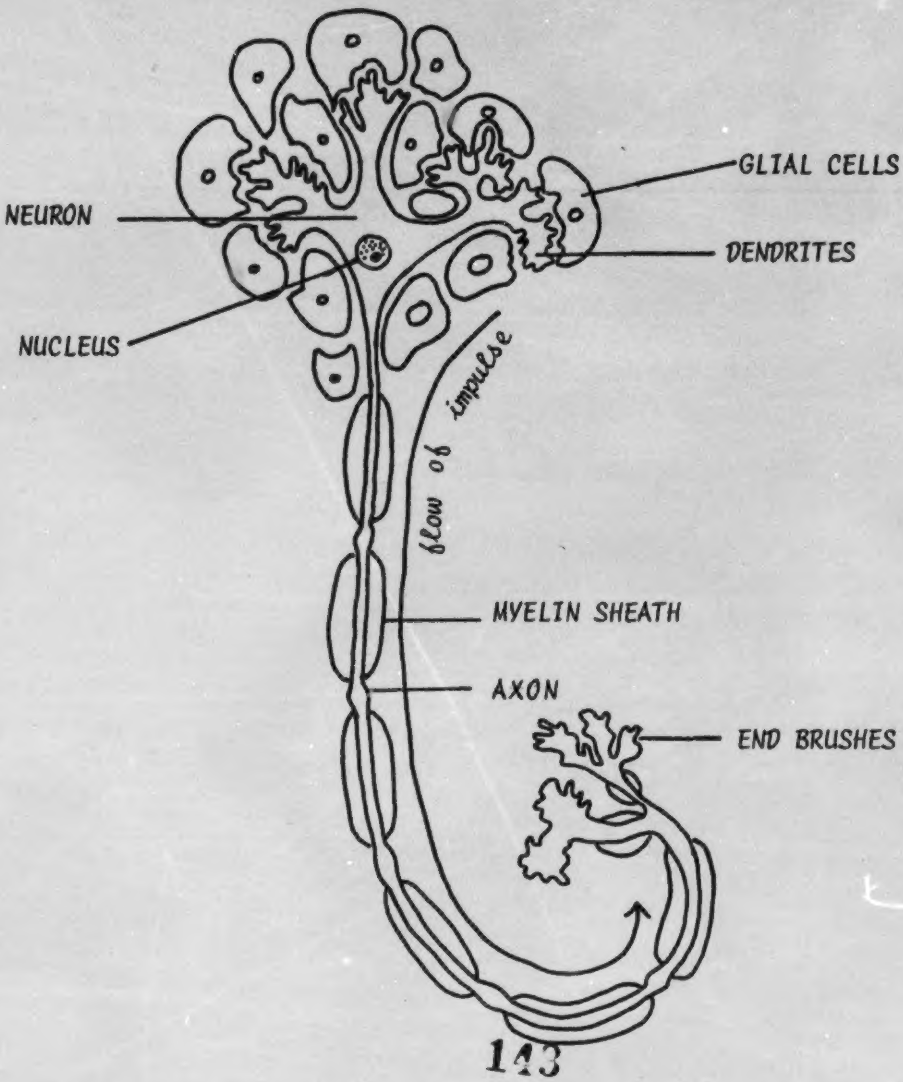
The Neural Cell



I. The Dietitian

Transparency 3

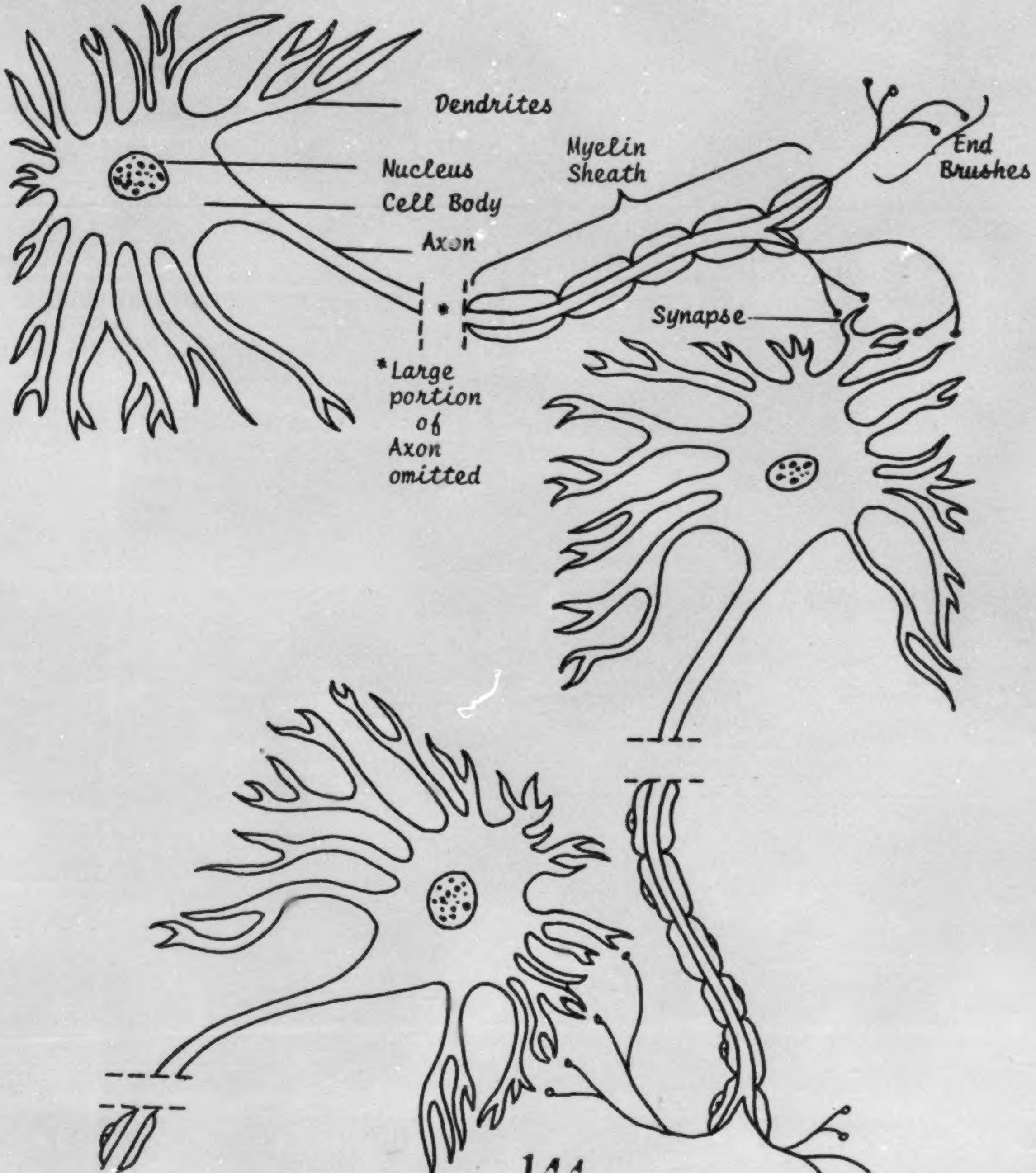
The Neural Cell


GLIAL CELLS
NEURON
DENDRITES
NUCLEUS
flow of impulse
MYELIN SHEATH
AXON
END BRUSHES

I. The Dietitian

Transparency 4

Network of Nerve Cells


Dendrites
Nucleus
Cell Body
Axon
Myelin Sheath
End Brushes
Synapse
*
*Large portion of Axon omitted

I. The Dietitian

Ditto 3

Cycle of Malnutrition
Role Cards

Role Card 1. Cycle of Malnutrition
The undernourished mother "feeds" her baby in the uterus an unbalanced or inadequate diet. The brain in its growth spurts does not receive adequate protein and/or calories.

Role Card 2. Cycle of Malnutrition
The underweight or malnourished newborn sucks less vigorously and less often. The quality and/or quantity of the breast milk or diluted, inappropriate and/or unsanitary formula may contribute to further undernourishment of the infant's brain in its growth spurts.

Role Card 3. Cycle of Malnutrition
At 6 months the malnourished mother may not be able to fulfill the increasing need of the baby for protein, calories, iron and vitamins by breast milk, formula and solid food.

Ditto 4

Cycle of Malnutrition
Role Cards
(continued)

Role Card 4. Cycle of Malnutrition

The baby becomes less active to conserve energy for growth and so is less curious and interacts less with parents, peers and the environment. The parents and brothers and sisters of the infant are less interested in a lethargic, apathetic child and give the baby less stimulation and attention than if he or she were curious and motivated. Sensitive periods for learning may be lost.

Role Card 5. Cycle of Malnutrition

The child who is unstimulated becomes increasingly passive and does less incidental learning from the environment.

Role Card 6. Cycle of Malnutrition

As the child enters school a concern for food interferes with concentration, attention and sensory-motor integration. Sensitive periods for learning may be lost.

Role Card 7. Cycle of Malnutrition

Activities at school become harder and harder as the child lags further behind.

I. The Dietitian

Ditto 5

Cycle of Malnutrition Role Cards (continued)

Role Card 8. Cycle of Malnutrition

The child's life becomes a pattern of failure at school and often at home one of discouragement.

Role Card 9. Cycle of Malnutrition

The child becomes generally maladapted to society. They cannot compete in the aggressive, competitive, fast-paced American society.

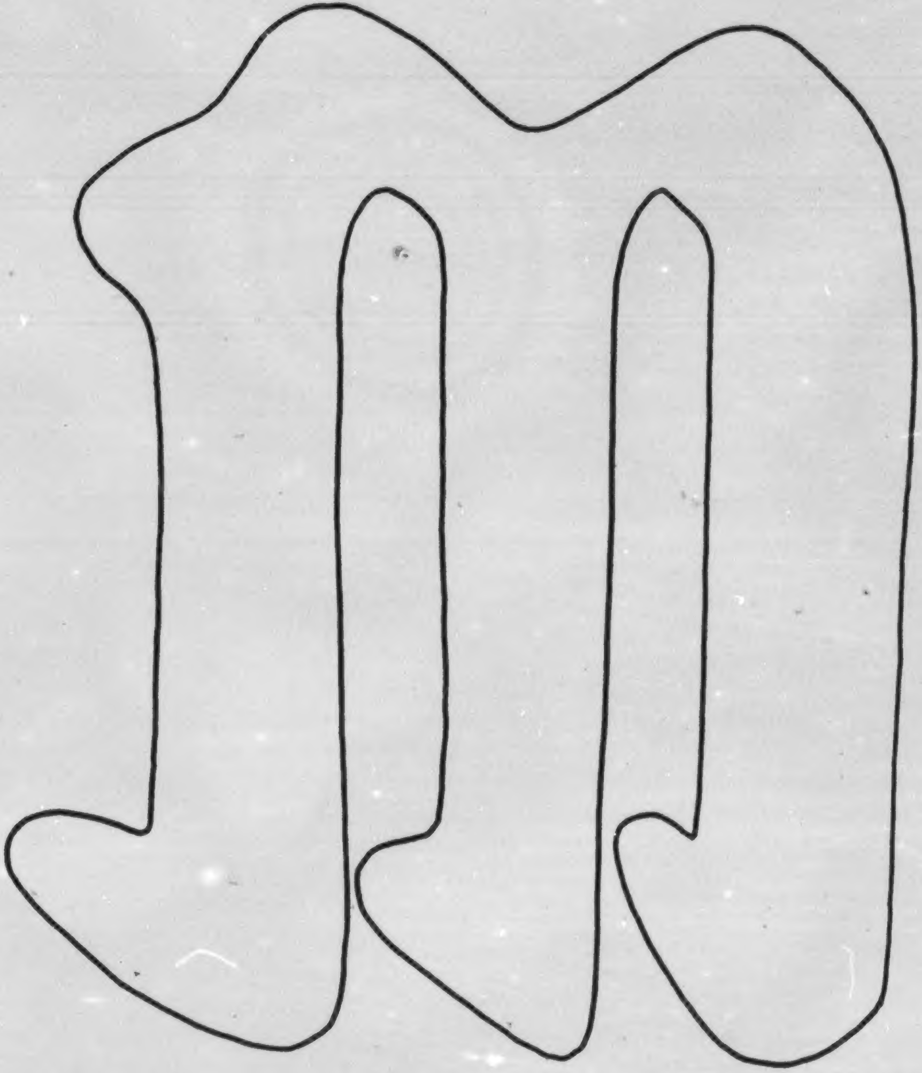
Role Card 10. Cycle of Malnutrition

As an adult the individual who started at (1) fails to be employed or works at a low paying job.

I. The Dietitian

Ditto 6

__Big M__



I. The Dietitian

Ditto 7

Situation Cards

SITUATION CARD #1 Feeding of the Normal Infant

Dramatize a situation in which the parents are starting their baby on new baby foods-Heinz High Protein Dinner and Heinz Cherry Custard at 3 months of age. The parents are forcing the baby to eat spoonful after spoonful becoming more angry and frustrated by the moment as most of the food is spit back out at them. Finally the baby pushes the whole feeding dish on the floor and the parents slap the infant and scream out their frustration.

SITUATION CARD #2 Feeding the Child With an Inborn Error of Metabolism

Dramatize a situation in which the parents and 3 year old child are in a car on the way to a hospital clinic 150 miles away. The child is acting up. The parents are discussing giving up their monthly visits to the clinic with their child because of all the demands and strains it puts on the family and themselves. They discuss their feelings: Is it really necessary for their child to stay on a special diet? Why must she be tested each month at the clinic? How are they going to be able to afford the child's special foods? What does it matter anyhow?

I. The Dietitian

Ditto 8

Situation Cards

SITUATION CARD #3 Feeding the Low-Birth-Weight Infant

Dramatize a group of "cool" vitamins, minerals and calories grouped around a scrawny, tiny newborn. They comment on her condition. The vitamins, minerals and calories and the low-birth-weight infant dialogue and decide what special kind of diet will improve her condition.

Bring out the following points in your comments and dialogue:

1. The infant is under 5½ pounds.
2. Inadequate, excess or imbalances of minerals, vitamins and calories can effect the brain of this tiny infant.
3. Enough calories are of utmost importance.
4. Such a tiny infant may have low stores of vitamins, defects in absorption and eat less vigorously than an infant over 5½ pounds.
5. The mineral needs of the low-birth-weight infant may need supplementation.

I. The Dietitian

Ditto 9

Situation Cards

SITUATION CARD #4 Feeding the Infant an Individualized Diet: Milk Made for Humans

Dramatize the following situation. A group of high powered salesmen from "Nettles Food Corporation" are flying to South America. On the plane they are planning how they will convert the poorer classes of Pelo to change from the age old "custom" of nursing their infants to use a "modern" formula, Nettles-High-Priced and High-Protein Formula! The salesmen arrive to convert Pelo to formula and millions into the profits of the Nettle Company. (This is a parady on a real-life situation - the remainder is not.) But alas the natives are educated. They do not want to be converted. In their dialogue with the super salesmen bring out the following points:

1. Human milk contains antibodies against infection.
2. Nettle's Formula ranges in price from $3.68 to $19.71 per week depending on how it is packaged. Nursing an infant costs nothing.
3. Human milk does not contain nitrates which may be found in water used in the preparation of the formula.
4. Nursing an infant provides a balance of nutrients which are important in the production of myelin, the protective covering of brain cells.
5. Milk made especially for infants has a mineral composition suited to the newborn's kidneys.
6. There is less likelihood of contamination in nursing an infant than in preparing a formula.

Ditto 10

Situation Cards

SITUATION CARD #5	Feeding Infants a Low Nitrate Diet

Dramatize the action of a chemical-nitrate-in causing mental retardation in an infant. One person is a nitrate, another oxygen and another is a red blood cell. You may want to cut out letters to identify yourselves. Another person represents the brain. In a sequence of movements and dialogue act out the following concepts:

1. The brain loves oxygen and must have it to function normally. (The brain and oxygen hug, smile and shake hands!)
2. Nitrates taken into the body in food (spinach and beets) and in water are converted by the body into nitrites. (What actions will you use to convey this?)
3. The red blood cell, specifically the hemoglobin, usually carries oxygen to the "greedy" brain.
4. However, nitrites have a greater attraction to the hemoglobin than does the oxygen so the nitrites push out the oxygen and travel with the hemoglobin in the red blood cell to the brain.
5. Lack of its beloved oxygen damages the brain.

I. The Dietitian

Ditto 11

Situation Cards

SITUATION CARD #6 Feeding the Child Who is Losing Water and Minerals

Dramatize a situation in which the mother and father of a young child are trying to decide what to do because their 3 month old baby has the flu with the typical symptoms of vomiting and diarrhea. The infant is listless and will not drink water or eat. In your dramatization emphasize the indecision of the parents, their feeling that the flu is nothing serious and their lack of knowledge in knowing what to do for their infant.

SITUATION CARD #7 Feeding the Child a Non-Allergic Diet

Dramatize the mechanism of an allergic reaction! One of you is a food (pick any food) to which a child is allergic. When the food is eaten it produces antibodies--someone else's role. When the allergen (the food) and the antibodies "get together" they produce histamines (chemicals)--someone else's part. These histamines go to various parts of the child's body. The child--someone else's part-- sneezes, wheezes, itches, coughs and has pains in the stomach.

I. The Dietitian

Ditto 12

Situation Cards

SITUATION CARD #8	Feeding a Child a Diet High in Iron

Dramatize the importance of iron in the diet to the brain! One of you is iron, another hemoglobin, another oxygen. Someone is the brain. If you have enough people left they can be poor appetite, fatigue, lowered resistance to infection. With dialogue and actions dramatize the following: Iron is part of hemoglobin. (The two shake hands, hug, smile!) The hemoglobin carries oxygen to the brain. (What actions will you do?) Without oxygen at an optimal level brain damage will occur. If there is not enough hemoglobin in the blood from lack of iron it cannot be an efficient oxygen carrier. As if that is not bad enough fatigue, poor appetite and infection will attack.

SITUATION CARD #9	Feeding the Child Who is Hyperactive

Dramatize a dialogue between two sets of parents who are discussing putting their hyperactive child on a diet. One set of parents believe a diet low in sugar, wheat flour, food additives and dyes is a cure-all for all hyperactive children. The other parents disbelieve everything they read and hear about the use of diet in the control of behavior.

I. The Dietitian

Ditto 13

Situation Cards

SITUATION CARD #10	Feeding the Child Who is Diabetic

Dramatize a doctor talking to a teenager and his parents. They have just learned that the teenager has Diabetes. The teenager is worried about what effect Diabetes will have on the sports he participates in. The parents want to know if their teenager can still eat all the foods that he loves. The doctor is concerned with keeping the disease under control in his young patient. Work up a dialogue among the doctor, the teenager and the parents bringing out the following concepts:

1. About 5% of the population has Diabetes Mellitus.
2. No matter how much the diabetic is eating or drinking he is not getting energy into the cells of the body including brain cells unless he has supplements of insulin.
3. The hormone insulin allows the movement of glucose from carbohydrates and protein to move into the cells and be utilized.
4. The diet of a diabetic is of a normal variety but it must be a balanced diet and be eaten at regular times along with regular supplementation of oral or injected insulin.

I. The Dietitian

Ditto 14

The Developmental Sequence of Eating Skills
(Average Levels)

Months	Eating Skills
0-4 months	Infant is nursed or fed milk, formula or milk substitute by the parents. Infant learns that meal time is one of social interaction and pleasure.
6-9 months	Infant holds, sucks and bites finger foods.
9-12 months	Infant holds own bottle (if bottle fed). May have given up bottle or breast-feeding. Eats most table food especially those that are finger foods. Drinks from a cup with assistance. Holds spoon. Licks spoon after it is dipped into food.
15 months	Holds appropriate size glass 1/4 full with both hands. Spills are to be expected as child tilts the cup instead of their head. Grasps spoon and puts it in food often spilling it before it reaches the mouth.
Years 1 1/2 years	May no longer need nursing or bottle. Holds cup with both hands and lifts to mouth. Drinks well. Is apt to drop cup if nobody is there to take it. Fills spoon. Difficulty in inserting it into the mouth. Turns spoon in mouth. Considerable spilling.

Ditto 15

The Developmental Sequence of Eating Skills
(Average Levels)

	May hand both cup and dish to parent insisting that it be off of their eating area when they are done.
2 years	Holds small glass with one hand when drinking. Puts spoon in mouth without turning it. Moderate spilling. Distinguishes between food and nonedible materials. Plays with food.
2-3 years	Feeds self with occasional spilling. Uses fork. Pours from pitcher. Can obtain a drink of water from the faucet. Likes to set table. Cannot sit for "long meal".
3-4 years	Can serve self at table.
5-6 years	Uses table knife for spreading and approximates cutting.

I. The Dietitian

Ditto 16

A New Experience-Solid Foods

At	Introduce
4-6 months	Yellow vegetables. Fruits. Cereals. Can switch to low calorie 2% but not skim milk at 5 months. As many foods as possible can be finger foods.
6-7 months	Meat. White fish. Green vegetables. As many of these foods as possible can be solid foods.
8 months	Bread. Family foods.
9 months	Egg yolks. Citrus fruits.

A General Guideline to Amounts of Milk Needed from Age 1-18

1-2	16 ounces
2-6	18 ounces
6-8	20 ounces
10-18 years of age	26-30 ounces

A General Guideline to Calories Needed from Age 1-18

1 year of age	1000 calories
2 years of age	1100 calories
3 years of age	1300 calories
etc. to teens	1900 calories
girls	2400-2700 calories
boys	3100-3600 calories

I. The Dietitian

Ditto 17

Examples of Drugs Which if Taken By The Nursing Mother Enter The Breast Milk and Effect The Infant

Drug Taken By The Mother	⇨ Effects On The Nursing Infant
Alcohol	The level in the milk will be about 90-95% of the mother's blood alcohol level.
Antithyroid Medicine	Will suppress the thyroid function in the infant.
Aspirin	Will depress platelet effect. (blood clotting)
Barbiturates	Can cause lethargy in infants.
Chloramphenicol	May harm the infant's bone marrow.
Diazepam	Causes lethargy, weight loss and jaundice in the infant.
Penicillin	May result in allergic sensitization. May result in ineffectiveness of penicillin as an antibody in child & adulthood.
Respirine	Causes lethargy, diarrhea, nasal congestion in the infant.
Sulfonamides	Results in anemia & jaundice in the infant.

I. The Dietitian

Ditto 18

Instructions for The Care of A Child Who Is Losing Fluids from Vomiting and/or Diarrhea

The parents should call a doctor if ANY of the following symptoms of dehydration are evident in the child or infant:

1. listlessness
2. lethargy
3. does not want to drink
4. a dry mouth
5. sunken eyes
6. decreased tear and urine excretion
7. weight loss.

Parents should be prepared to tell the doctor the amount of fluid intake per hour and the number of fluid losses per hour.

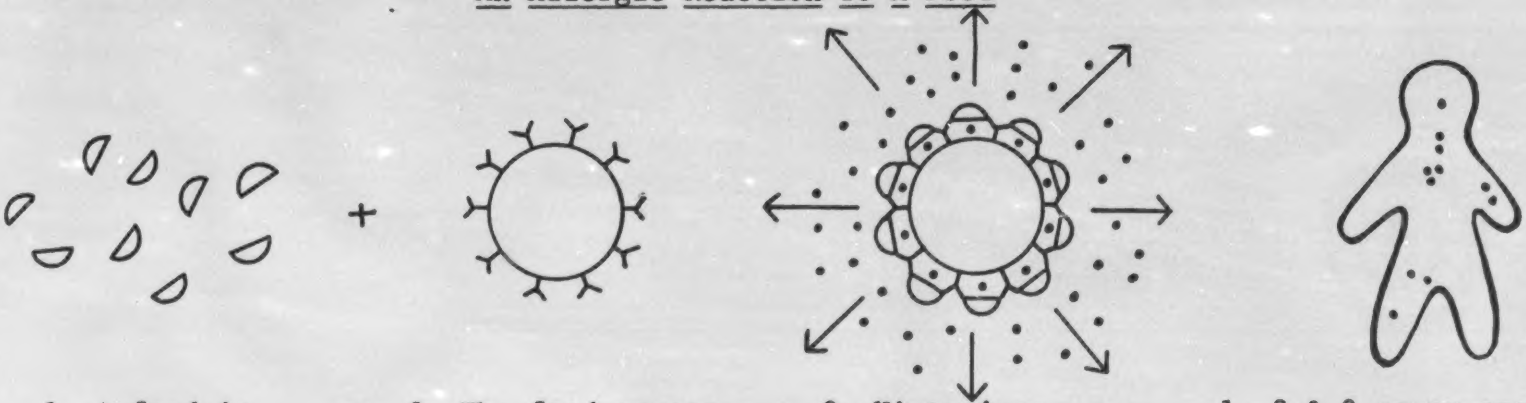
Fluid intake should be

2 ounces/hour for an infant
4 ounces/hour for a preschooler
5 ounces/hour for a school age child

I. The Dietitian

Ditto 19

An Allergic Reaction To A Food



1. A food is eaten.

   This food is an allergen for this individual because they over-react to this specific food.

2. The food causes the production of antibodies by an individual who is hypersensitive to this specific food.

3. Histamines (Chemicals)

   a. Serotonin
   b. Bradykinin
   c. SRS-A are released which act on

   1. Blood vessels: They dilate and fluid leaks out of them.
   2. Circular muscles: They tighten.
   3. Mucous glands: They put out additional mucous.

1, 2 & 3 cause one or more symptoms

- -sneezing, wheezing
- -itching, swelling, hives
- -coughing
- -headache
- -nausea
- -vomiting
- -abdominal pain
- -diarrhea
- -constipation

Affecting

skin
respiratory tract
gastrointestinal tract
vital organs

I. The Dietitian

Ditto 20

List of Foods Which Commonly Cause Allergic Reactions

Cow's milk
Eggs
Wheat flour
Nuts
Fish
  (particularly shellfish)
Chocolate
Pork

Strawberries
Corn/corn products
Citrus fruit (orange,
  lemon, grapefruit,
  lime, fruit flavoring)
Spices
Peas (lentils)

Symptoms of an Allergic Reaction

sneezing (Hay fever)
wheezing (Asthma)
coughing
itching (Eczema)
swelling (Hives)
runny nose

overactivity
fretfulness
fitful sleep
irritability

enlarged lymph gland
buzzing in the ears
deafness
dizziness
blurred vision
shortness of breath
elevation of blood pressure
swelling of voice box

abdominal pain
colic
constipation
burning urination

listless
drowsiness
fatigue
paleness
circles under the eyes

mental depression
convulsions
hallucinations
manic behavior
serious shock

death

I. The Dietitian

Ditto 21

Government Sponsored Food Programs

THE COMMODITY DISTRIBUTION PROGRAM which provides food assistance to the poor consisting of dairy products, meat and cereal supplements.

THE NATIONAL SCHOOL LUNCH PROGRAM provides nutritionally balanced foods at lunch at a minimal cost or free of charge. Besides being available at public schools, preschool low income children can participate in a minimal cost or free lunch. Also breakfast is provided in some schools serving low income children.

THE FOOD STAMP PROGRAM provides bonus food stamps to low income families to help them buy larger quantities of foods on a limited income.

THE WIC (women, infants and children) PROGRAM provides supplemental nutritious food during critical times of growth and development. Available through public health or welfare agencies, food may be obtained through retail stores using a retail purchase system, by home delivery or picked up from a distribution center.

The program serves

1. Women who are pregnant or have given birth (up to 6 months) who are high risk, anemic, under or overweight or have inadequate food.
2. Infants and children from birth to five who are born to a mother who received supplements when pregnant, are anemic, are under or overweight, were underweight at birth or have inadequate food.
3. Women who are breast-feeding up to a year who fall into any of the categories in #1 or their children fall into any of the categories in #2.

The WIC program which emphasizes the relationship of nutrition to the total concept of health and also attempts to change the food habits of the low income family provides 3 types of packages on a monthly basis.

Ditto 22

Government Sponsored Food Programs (continued)

PACKAGE 1	Infants
iron fortified infant formula	403 ounces
infant cereal	24 ounces
juice	92 ounces

PACKAGE 2	Children, pregnant women, post partum or breast-feeding
milk (whole, skim, evaporated dry or buttermilk)	28 quarts
cheese (as a substitute for milk)	1 lb/3 qt milk
eggs	2 1/2 dozen
cereal (high in iron)	36 ounces
juice (high in C)	276 ounces

PACKAGE 3	Children with special dietary needs
iron fortified formula	403 ounces
cereal	36 ounces
juice	138 ounces

Ditto 23

Toxic Substances, Their Sources and How to Avoid Them in Food Preparation

Toxic Substance	Source	Prevention of Poisoning In Food Preparation
Zinc	Galvanized ware	Avoid using galvanized containers for storing or cooking acid food & drink.
Cadmium	Plating metal	Avoid using cadmium plated containers for storing or cooking acid foods.
Copper	Copper-food contact	Avoid using copper pipes and containers in contact with acid food and drink. Copper decorations on cake should not be used.
Lead	Pesticides	Avoid using lead containers in contact with foods or for distillation.
Organic phosphorous	Insecticides	Wash or blanch foods. Do not spray near harvest time.
Chlorinated hydrocarbon	Insecticides	Wash or blanch foods. Do not spray with DDT or near harvest time.

I. The Dietitian

Ditto 24

Preparing Food Free From Infection and Intoxication

Prevention of food intoxication and infection depends on a number of factors in the process of preparing the family's food:

1. Food should be chilled rapidly and in small quantities.
2. Foods should be cooked thoroughly and properly.
3. Cross contamination from raw to cooked foods should be avoided.
4. Sanitary cooking utensils should be used.
5. Personal hygiene must be good when handling foods.
6. Food should be protected from human and animal excretion.
7. Flies in a cooking area must be controlled.
8. Working with foods when a person has infected cuts, colds other illnesses or diarrhea should be avoided.
9. In canning correct temperatures, pressures, acidity and cooking methods should be strictly adhered to.

I. The Dietitian

Ditto 25

The Action Checklist

If I am a parent:

____ My infant and/or young child will have first priority in food consumption in our family.

____ I will be sure that my child receives adequate protein, calories and iron especially from birth to 2 years of age when "brain growth spurts" are taking place.

____ (Boys only!) I will encourage the mother of my child to breast-feed my infant.

____ (Girls only!) I will breast-feed my infant.

____ (Girls only!) If I am nursing my infant I will make sure that I limit or not use social drugs or over-the-counter drugs and use prescription drugs only with advice from a physician who considers its effects on the nursing infant.

____ (Boys only!) I will encourage the mother of my child to carry out the action above.

Ditto 26

The Action Checklist (continued)

____ (Girls only!) If my infant is jaundiced from an inability to handle a hormone in breast milk I will give up nursing my infant at least temporarily.

____ (Boys only!) I will encourage the mother of my infant to carry out the action above.

____ If my infant is of low birth weight (under 5½ pounds) I will see that she or he receives vitamin, mineral and calorie supplements to their primary milk intake.

____ I will provide my infant with supplements of vitamins and/or minerals and particularly iron that are appropriate to his or her type of milk or milk substitute intake and individual deficiencies or risk.

____ I will have the nitrate content of my water supply checked before using it in formula.

____ I will not feed my infant fresh beets or spinach.

____ I will introduce foods to my infant one at a time beginning at about 4 months of age and not become upset if more "dribbles out" than stays in the baby.

____ I will establish sound nutritional patterns in my infant.

____ I will make mealtime from infancy to adulthood a pleasurable time allowing for interaction and conversation between myself and my child or children.

____ I will not force, plead, beg or bribe my child or children to eat but give them the freedom to eat just until their hunger is satisfied allowing for individual likes and dislikes in food.

____ I will see that my child or children have an "individualized diet" if it is necessary for good mental and physical development.

____ If my child has an inborn error of metabolism I will secure the consultation of a clinic and physician experienced in treating children with genetic disease.

I. The Dietitian

Ditto 27

The Action Checklist
(continued)

____ I will see that my child strictly follows a diet which is restricted in a particular nutrient if the child has a genetic disease treatable by diet.

____ If my infant or child has diarrhea I will feed them a clear diet, followed by soft foods and have a physician determine the underlying cause of the diarrhea if it is serious or prolonged.

____ If my child has a symptom or symptoms of an allergic reaction I will consider food as a possible cause and put my child on an "elimination diet" under the direction of a physician.

____ If I have a child whose hyperactivity is causing learning problems I will see that they have a biochemical workup and nutritional assessment as part of their total diagnosis.

____ If my infant has seizures, paleness, lethargy and excessive sweating I will make sure that the physician considers the child's blood sugar level as an underlying cause of these symptoms.

____ If my child has Diabetes Mellitus I will see that she or he eats balanced and regular meals.

In preparing food for the family I will:

____ Cook foods properly and thoroughly in sanitary cooking utensils.

____ Chill food rapidly and in small quantities.

____ Protect foods from human and animal excretion and from fly contamination.

____ Use good personal hygiene and not allow persons with infected cuts, colds, intestinal disorders and other illnesses to prepare food.

____ Not mix raw and cooked foods when storing.

____ Follow correct temperature, acidity, pressure and cooking guidelines in canning.

I. The Dietitian

Ditto 28

The Action Checklist
(continued)

____ Avoid using galvanized, lead, cadmium or copper containers for cooking or storing acid foods and drinks.

____ Wash or blanch fresh fruits and vegetables.

____ Do not spray gardens with insecticides near harvest time or use DDT.

____ If I become part of a low income family I will take advantage of the Commodity Distribution Program, The National School Lunch Program, The Food Stamp Program and The WIC Program to provide a high protein, high iron and adequate calorie diet for my infant and child.

____ If I become part of a low income family I will nurse my child or as the father of the infant encourage the mother to nurse the child, give my child absolute priority in food intake and buy inexpensive sources of high quality protein at the store for my child.

Bibliography

Ashmore, Richard. "Societal and Individual Orientations Toward Prevention." The Prevention of Genetic Disease and Mental Retardation, Aubrey Milunsky, Ed., Philadelphia: W.B. Saunders, 1975.

Barnes, Richard H. "Nutrition and Man's Intellect and Behavior." Federation Proceedings, 30 (4): July/August, 1971.

Birch, Herbert G. and L. Belmont. "Auditory-Visual Integration, Intelligence and Reading Ability in School Children." Perceptual and Motor Skills, 20 (1965).

Birch, Herbert G. and Joan Gussow. Disadvantaged Children, Health, Nutrition and School Failure, New York: Grune & Stratton, 1970.

Blaskovics, Milan E. "Diagnostic Considerations in Phenylalaninemic Subjects Before and After Dietary Therapy." Journal of the Irish Medical Association, Vol. 69, No. 15, Sept. 1976.

Boston Children's Medical Center. Child Health Encyclopedia, New York: Delacorte Press, 1975.

Boston Children's Medical Center. Pregnancy, Birth and The Newborn Baby, Delacorte Press: 1978.

Brozek, Jose F. "Malnutrition and Behavior." Pediatrics, Vol. 46, No. 3, Sept. 1970.

Carter, Charles. "Endocrine Abnormalities." Handbook of Mental Retardation Syndromes, Springfield: Charles C. Thomas, 1975.

Carter, Charles. "Poisons, Allergies and Deficiencies." Handbook of Mental Retardation Syndromes, Springfield: Charles C. Thomas, 1975.

Carter, Charles. Medical Aspects of Mental Retardation, Springfield: Charles Thomas, 1978.

Carter, Charles. "Metabolic and Transport Anomalies." Handbook of Mental Retardation Syndromes, Springfield: Charles C. Thomas, 1975.

Carter, Charles. "Prevention, Early Detection and Treatment." Handbook of Mental Retardation Syndromes, Springfield: Charles C. Thomas, 1975.

Christiansen, Robert O. "Juvenile Diabetes Mellitus." Physically Handicapped Children, Ed. by Eugene Bleck and Donald Nagel, New York: Grune & Stratton, 1975.

Committee on Children With Handicaps. "Phenylketonuria and The Phenylalaninemias of Infancy." Pediatrics, Vol. 49, No. 4, April 1972.

Committee on Nutrition. "Infant Methemoglobinemia, The Role of Dietary Nitrate." Pediatrics, Vol. 46, No. 3, Sept. 1970.

Committee on Nutrition. "Iron Balance and Requirements In Infancy." Pediatrics, Vol. 43, No. 1, Jan. 1969.

Committee on Nutrition. "Nutritional Needs of Low-Birth-Weight Infants." Pediatrics, Vol. 60, No. 4, October 1977.

Committee on Nutrition. "Relationship Between Iron Status and Incidence of Infection in Infancy." Pediatrics, Vol. 62, No. 2, August 1978.

Committee on Nutrition. "Special Diets for Infants with Inborn Errors of Amino Acid Metabolism." Pediatrics, 57, 1976.

Costrini, Nicholas V. and William Thompson (Ed.). Manual of Medical Therapeutics, Boston: Little, Brown and Co., 1978.

Cravioto, J., E.B. Delicardie, and H.G. Birch. "Nutrition, Growth and Neurointegrative Development: An Experimental and Ecologic Study." Pediatrics 38, Suppl. No. 2 Part II, 319-372, 1966.

Crook, William. Are You Allergic? Professional Books, P.O. Box 3494, Jackson, Tennessee 38301, 1978.

Culley, William J. "Nutrition and Mental Retardation." Medical Aspects of Mental Retardation, Springfield: Charles C. Thomas, 1978.

Danks, D.M. and others. "Variant Forms of Phenylketonuria." Lancet I (7971) June 1976.

Desnick, R.J. and others. "Enzyme Therapy in Genetic Diseases: Progress, Principles and Prospects." The Prevention of Genetic Disease and Mental Retardation, Aubrey Milunsky, Ed., Philadelphia: W.B. Saunders, 1975.

Desnick, R.J. and others. "Enzyme Therapy in Genetic Diseases: Progress, Principles and Prospects." Journal of Applied Social Psychology, 2:95, 1972.

Donnell, G.N., M. Collado, and R. Koch. "Growth and Development of Children With Galactosemia." Journal of Pediatrics. 58:836, 1961.

Ewald, Ellen. Recipes for a Small Planet. Ballantine Books, 1973.

Feinbloom, Richard I. and others. Child Health Encyclopedia, New York: Dell, 1975.

Food Allergy #75-533, National Institute of Allergy and Infectious Diseases, NIH Bethesda, Maryland 20014

Fraser, Donald. "The Relationship Between Infantile Hypercalcemia and Vitamin D-Public Health Implications in North America." Pediatrics, Vol. 40, No. 6, December 1967.

Frazier, Claude. "All About Food Allergies." Parent's Magazine, March 1978.

Frazier, Claude. Parent's Guide to Allergy in Children, Garden City, N.Y.: Doubleday.

Garn, Stanley M. and Diane Clark. "Nutrition, Growth, Development and Maturation: Findings From the Ten-State Nutrition, Survey of 1968-1970." Pediatrics, Vol. 56, No. 2, August 1975.

Groover, Robert V. "Neurologic Manifestations of Endocrinologic Disease." Medical Aspects of Mental Retardation, Ed. by Charles Carter, Springfield: Charles C. Thomas, 1978.

Grussow, Joan. "Nutrition and Mental Development." Urban Disadvantaged Series, No. 36. Columbia University Press, February 1974.

Guttler, Flemming and Erik Wamberg. "On Indications For Treatment of The Hyperphenylalaninemic Neonate." Acta Paediatr Scand 66, 1977.

Harvey, Bint. "Asthma." Physically Handicapped Children, Ed. by Eugene Bleck and Donald Nagel. New York: Grune & Stratton, 1975.

Hodin, Jay. Malnutrition and Developmental Disabilities - A Causal Relationship. September, 1975. An unpublished paper.

Hsia, Yugen Edward. "Treatment in Genetic Disease." The Prevention of Genetic Disease and Mental Retardation, Aubrey Milunsky, Ed., Philadelphia: W.B. Saunders, 1975.

Indiana State Board of Health. Classification of Illnesses Attributable to Foods. 1978.

Insect Allergy #77-1046, from: National Institute of Allergy and Infectious Diseases, NIH Bethesda, Maryland 20014

Keefer, Norman and Judith. Malnutrition and Mental Development: Implications for the Preschool Child: A Review of the Literature, 1966-1970, Michigan University Press, 1971.

Kowalewski, Edward J. "Factors Influencing Breast Feeding." The Journal of Continuing Education in Family Medicine, October 1978, Article by Lawrence R. Berger.

Krech, David. "The Chemistry of Learning." Saturday Review, January 1968.

Latham, Michael and Francisco Cobos. "The Effects of Malnutrition on Intellectual Development and Learning." American Journal of Public Health, July 1971.

Levy, H.L., V.E. Shih, and P.M. Madigan. "Massachusetts Metabolic Disorders Screening Program. I. Technics and Results of Urine Screening." Pediatrics, 49:825, 1972.

Lubchenco, Lula and Harry Band. "Incidence of Hypoglycemia in Newborn Infants Classified By Birth Weight and Gestational Age." Pediatrics, Vol. 47, No. 5, May 1971.

MacCready, R.A. and H.L. Levy. "The Problem of Maternal Phenylketonuria." American Journal of Obstetrics and Gynecology, 113, No. 1:121, 1972.

MacCready, R.A. and others. "Screening for PKU and Other Inborn Errors of Metabolism." Prevention Notes No. 1. (Unpublished).

Manocha, Sohan L. Malnutrition and Retarded Human Development. Springfield: Charles C. Thomas, 1972.

McKigney, John I. and Hamish N. Munro. Nutrient Requirements in Adolescence. NICHD Office of Research Reporting, 1976.

Milunsky, Abrey. "Treating Genetic Disease." Know Your Genes, Houghton Mifflin Co.

Monckeberg, Fernando and others. "Malnutrition and Mental Development." The American Journal of Clinical Nutrition, August 1972.

National Association for Retarded Children. To Our Children's Children.

National Institute of Allergy and Infectious Diseases. Allergy Research; An Introduction. Superintendent of Documents, 1972.

National Institute of Allergy and Infectious Diseases. Questions and Answers About Allergies, August 1977.

National Institute of Health. Malnutrition. Unpublished paper, 1978.

Nourse, Alan E. and others. The Body, New York: Time Life Books 1969.

Nutrition. Unpublished paper prepared for Appropriations Hearings. February 1978.

Prevention Handbook: To Our Children's Children. National Association for Retarded Citizens, Arlington, Texas 1976.

Read, Merril S. and David Felson. Malnutrition, Learning and Behavior. National Institute of Child Health and Human Development Center for Research for Mothers and Children, 1976.

Schmitt, Barton D. "The Physicians Evaluation." The Child Protection Team Handbook, Ed. by Barton D. Schmitt. New York: Garland STPM Press, 1978.

Shineour, Elie. The Malnourished Mind. New York: Doubleday, 1974.

Smith, Lendon. Improving Your Child's Behavior Chemistry, New York: Simon & Schuster Pub., 1976.

Solomon, Goody. "New Diet Link to Retardation." Boston Globe, June 21, 1978.

Summary of Summit Prevention of Mental Retardation From Biomedical Causes, held at Wingspread, Wisconsin December 15 & 16, 1977. Unpublished Notes.

Tada, Keiya. "Pathogenesis of Mental Retardation in Amino Acid Disorders." International Journal of Neurology, II (I), 1976.

Thever, Richard. "Iron Undernutrition in Infancy." Clinical Pediatrics: Vol. 13, No. 6, June 1974.

Tobias, P. V. The Brain in Hominid Evolution. New York: Columbia University Press, 1971.

Trowbridge, Frederick L. and others. "Intellectual Assessment in Primitive Societies, With a Preliminary Report of a Study of the Effects of Early Iodine Supplementation on Intelligence." Advanced Experimental Medical Biology 30, 1972.

U.S. Department of Agriculture, Food and Nutrition Service. Part 246-Special Supplemental Food Programs for Women, Infants and Children.

U. S. Department of Health, Education and Welfare (NIH). Fact Sheet: Diabetes and Cardiovascular Disease, 1977, U.S. Government Printing Office.

U. S. Department of Health, Education & Welfare. Food Allergy, 1975.

U. S. Department of Health, Education & Welfare. "Malnutrition and Learning." American Education, December 1969.

U. S. Department of Health, Education & Welfare. Nutrition and Feeding of Infants & Children Under Three In Group Day Care, 1971.

Wabash Center. Guide to Early Developmental Training. Indianapolis: Communication-Dissemination Center 1970, Editors: Donna Kiska and Jack D. Bourland.

Williams, Phyllis. Nutritional Requirements During Pregnancy, Lactation, Infancy and Childhood, September 1975. (Unpublished paper).

Wilson, John R. and others. The Mind, New York: Time Life Books 1969.

Winick, M. "Changes in Nucleic Acid and Protein Content of the Human Brain During Growth." Pediatric Research 2 (1968).

Winick, M. "Malnutrition and Brain Development." Journal of Pediatrics 74, 1969.

Winick, M. and P. Rosso. "The Effects of Severe Early Malnutrition on Cellular Growth of The Human Brain." Pediatric Research 3 (1969).

World Health Organization. Deprivation of Maternal Care. Geneva: WHO, 1962.

THE MOTHER AND FATHER OF THE GROWING CHILD IN THEIR ROLE AS

DOCTOR

II. The Mother and Father of The Growing Child In Their Role as Doctor

⇨ Their Responsibility in The Prevention of Mental Retardation In The Next Generation

▷ Objectives

GENERAL

- a. *To give the students an understanding of the anatomy and physiology of the Central Nervous System and its role in Mental Function.*
- b. *To give the students understanding of specific health agents that have the potential of causing mental retardation.*
- c. *To give students an understanding that medical care is important to the mental growth of their growing child.*
- d. *To give the students information enabling them to function responsibly in their role as doctor during the growing years of their child.*
- e. *The student will know the importance of preventive medical care.*
- f. *The student will know that immunization and regular checkups are part of preventive medical care.*
- g. *The student will know that responsible selection of a doctor is important to preventive medical care in the growing child.*
- h. *The student will know that childhood illnesses have the potential of resulting in mental retardation.*
- i. *The student will know that metabolic dysfunctions and endocrine imbalances have the potential of causing mental retardation during the growing years.*
- j. *The student will be motivated to take a responsible approach to preventive medical care for their child to prevent or lessen possible mental retardation in that child.*

SPECIFIC

Cognitive

1. The student will be able to name the basic parts of the central nervous system needed for normal intellectual function.
2. The student will be able to state the key relationship of neuron cells to mental functioning.
3. The student will be able to explain how metabolic malfunctioning can potentially cause mental retardation.
4. The student will be able to name three (3) of the metabolic processes that are necessary for maintenance of life and normal body functioning.
5. The student will be able to explain how childhood diseases can potentially lead to mental retardation.
6. The student will be able to name three (3) of the childhood diseases that can be prevented by immunization.
7. The student will be able to explain how vaccines and the misuse of drugs and medication can potentially cause mental retardation.
8. The student will be able to explain why their child's general health and nutrition is important to the prevention of illness and possible mental retardation.
9. The student will be able to name the two (2) infectious diseases of the central nervous system that have the potential of causing mental retardation.
10. The student will be able to explain the importance of mosquito control in relation to the prevention of encephalitis.
11. The student will be able to explain the importance of the immune system to the body's ability to combat illness.
12. The student will be able to explain the importance of immunoglobulin or antiserum.
13. The student will be able to name six (6) signs and symptoms of illness.
14. The student will be able to name one (1) symptom that has potential to cause mental retardation.
15. The student will be able to explain the importance of a responsible selection of a physician for their child.

Affective

1. The student will feel that damage to the central nervous system can cause mental retardation.
2. The student will feel that childhood illnesses and metabolic disorders have the potential of resulting in mental retardation.
3. The student will feel that a responsible, congenial, and trustful relationship is needed in the selection and interaction with the physician of their child.
4. The student will feel preventive health care is important to the mental well-being of their child.
5. The student will be motivated to take personal action to:
    - a. ensure their child completes his immunization schedule.
    - b. find out what are "normal" vaccine or drug reactions and act immediately when an abnormal reaction occurs in their child.
    - c. notify their doctor when their infant has been exposed to a serious childhood illness.
    - d. control the exposure of their infant or child to mosquitos.
    - e. provide the stage for their child to get adequate nutrition and rest.
    - f. notify their doctor when the infant or child exhibits signs or symptoms of illness.

g. take their child for regular medical checkups.
h. select a physician for their child in a responsible and knowledgeable manner.

Background Information for The Teacher

WHAT IS THE CENTRAL NERVOUS SYSTEM ?

The central nervous system (CNS) is composed of the brain and spinal column. The brain is involved in: consciousness; abstract thought; memory; interpretation of emotions; interpretation of sensation; interpretation of body needs as hunger, sleep and thirst; coordinator of metabolic activities, respiratory system, glandular system, motor functions, speech, control, etc. The CNS is exceedingly intricate and important for controlling the needs of a highly developed organism, the body. If the chemical needs of the CNS are unmet or it is invaded by an infection, damage occurs and can effect the intelligence, mobility, emotions, and bodily functions.

The body tissues and the CNS are reciprocal of each other. Although the brain coordinates metabolic activity and organ functions it is also dependent on endocrine and organ systems for chemical nutrients and maintenance. If one of the body systems is malfunctioning the CNS could potentially be effected. If the heart stops, blood no longer reaches the brain with the needed oxygen supply for brain cell function. If the oxygen supply is stopped only periodically little damage is done. If it lasts for 4 or more minutes, brain cells start to degenerate. If enough degeneration occurs, brain damage/mental subnormality will be evident. This is an irreversible process.

THE BRAIN

"THE THINKING MACHINE"

The brain consists of:

1. two halves identical in structure-the cerebral hemispheres-considered totally as the cerebrum; each half consists of four lobes-parietal, frontal, temporal, and occipital.
2. the cerebellum-large posterior brain mass located at back and below cerebral hemisphere.
3. four fluid filled cavities inside the brain; a lateral ventricle in each hemisphere and a third and fourth ventricle common to both.
4. a centrally located collection of nerve cells (neurons)-the basal ganglia and thalamus.

5. the cortex surface of the brain consists of nerve cells-the gray matter (neurons) and supporting cells or white matter (glial cells); these are thrown into folds and grooves on brain surface (gyri).
6. nerve fibers (axons) from the nerve cells descend through the brain to connect with other cells in the brain and the spinal cord.
7. the brain stem is the part of brain remaining after removal of the cerebral hemisphere and the cerebellum. It is continuous with the spinal cord. It consists of four parts; the medulla, the pons, the midbrain, and the thalamus. These contain the centers (nuclei) for function of the cranial nerves (e.g. taste, eye movements, tongue, facial expression and sensation, swallowing), respiration control, nerve cells that inhibit or facilitate spinal cord nerve cells, and centers of cells for the appreciation of pain and temperature sensations.
8. a protective covering called meninges covers the brain. It is composed of the dura mater, arachnoid membrane and pia mater.

Adapted from Physically Handicapped Children: A Medical Atlas for Teachers, by Eugene E. Bleck, M.D. and Donald A. Nagel, M.D.

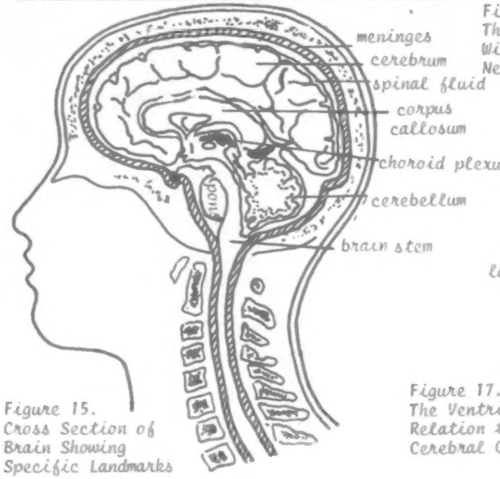
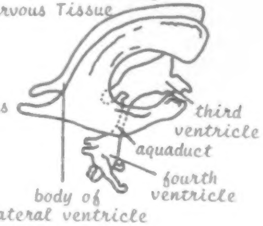

meninges
cerebrum
spinal fluid
corpus callosum
choroid plexus
cerebellum
brain stem
pons

Figure 15. Cross Section of Brain Showing Specific Landmarks

Figure 16. The Ventricles Without Surrounding Nervous Tissue


third ventricle
aquaduct
fourth ventricle
body of lateral ventricle

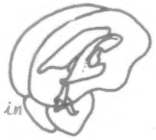
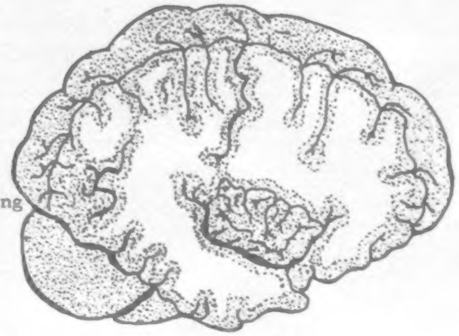


Figure 17. The Ventricles in Relation to Cerebral Cortex.

Figure 18.

Cross Section Showing The Gray Matter



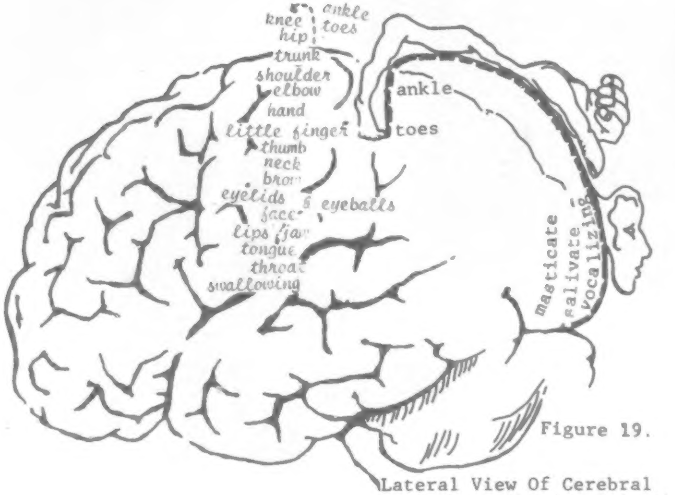

ankle
knee
toes
hip
trunk
shoulder
elbow
hand
little finger
thumb
neck
brow
eyelids
& eyeballs
face
lips
jaw
tongue
throat
swallowing
ankle
toes
masticate
salivate
vocalizing
A

Figure 19.

Lateral View Of Cerebral Hemisphere-Showing Heiarchy of Motor Area

THE SPINAL CORD

"THE PROTECTOR"

The Spinal Cord consists of:

1. Neurons and axons that carry impulses from the brain to be relayed to the nerves going to the limbs, trunk, bladder and rectum. The nerve cells (neurons) form the letter "H" and appear as a gray mass. The surrounding white area consists mostly of white fibers of the axons.
2. A thick bony structure, the vertebral column, consists of contiguous parts of the vertebra and houses the spinal cord.
3. The cord is suspended loosely in the spinal canal and is continuous with the base of the brain. The cord tapers to a smaller diameter below the second lumbar vertebra.
4. The meninges form a nourishing and protective membranous cover for the canal. The meninges are composed of: the dura matter; arachnoid membrane; subarachnoid space; and the pia mater. The subarachnoid space contains cerebrospinal fluid. The fluid protects the cord from mechanical injuries.
5. The central canal is a minute tube located in the center of the cord. It opens anteriorly into the fourth ventricle, where the cerebrospinal fluid is manufactured.
6. Thirty-one pairs of spinal nerves arise from the cord end emerge through openings between the vertebra.

Figure 20. Cross Section of Spinal Cord

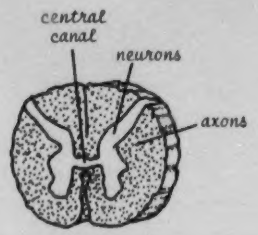


Figure 21. Illustration of Vertabral Column and Spinal Cord

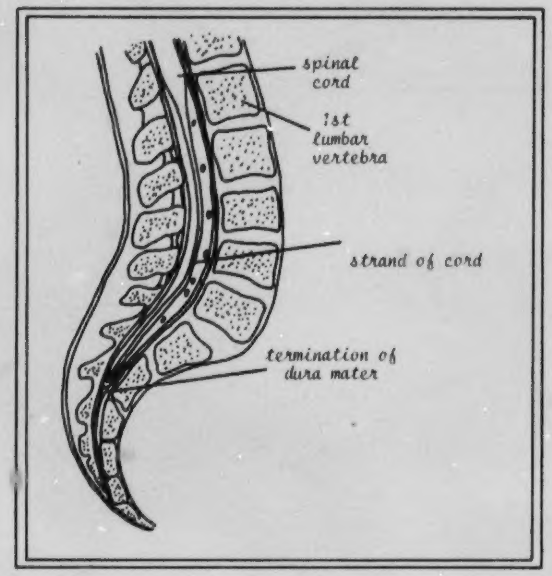
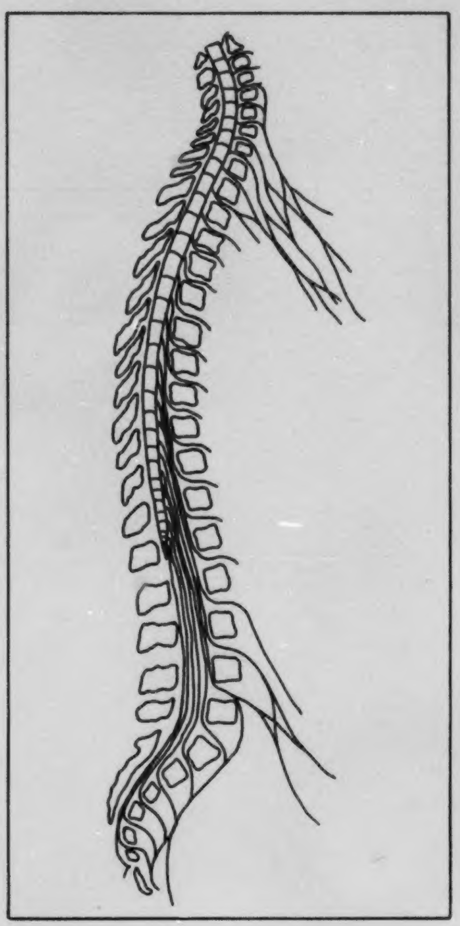


Figure 22. Side View of Spinal Column - Showing How Nerve Roots Emerge from Spinal Cord



PHYSIOLOGY

"WHERE DID IT ALL COME FROM?"
"WHAT DOES IT DO?"

#1 CELLS - BASIS OF ALL LIFE FORMS

The body is made up of cells. Cells are microscopic in nature and the basic structural unit of all living matter. Groups of cells that are similar in origin, structure, and function are called tissues. Therefore groups of muscle cells are called muscle tissue and groups of neurons or nerve cells are called nervous tissue.

Types or groups of cells vary greatly in their structure and function. As a species they have a few general characteristics in common: they are a structure comprised of protoplasm, and have an outer boundary termed a cell membrane. Protoplasm refers to the living substance within a cell. It is made of the same chemicals that are found in nonliving substances; oxygen, hydrogen, nitrogen and carbon. In living substances (protoplasm) these elements execute the essential activities of life: irritability; mobility; metabolism; growth; and reproduction.

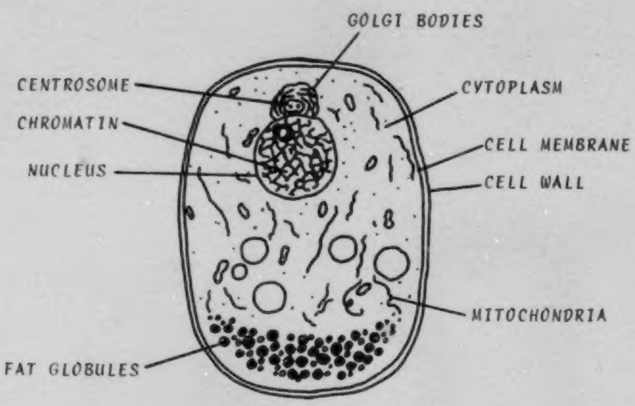
Growth of body tissues are directly related to cell reproduction and growth. This occurs when metabolic processes convert food into protoplasm faster than protoplasm can be broken down into simpler substances. When a cell attains its potential growth (of protoplasm) it then may undergo division. Division results in a larger quantity of smaller cells which grow and in turn undergo division. As the cells reproduce and a greater number of these cells expand to reach their normal size, the tissues of our body also expand or grow.

There are numerous types of cells. A cell is microscopic and usually takes the form of a sphere. Size varies with the type or class of cell. Human blood cells are .008 mm. in diameter. One of the largest cells of animals is the yolk of an egg which has a nucleus and nutritive food material as do other cells.

The cell's living substances are referred to as protoplasm. This includes the living matter in the cell body and that in the nucleus or center of the cell. The protoplasm in the cell body is called cytoplasm. Housed in the cytoplasm are many organized structures that are involved in the cell's enzyme reactions and metabolic activity. Mitochondria and Glolgi bodies are structures of the cell body (cytoplasm) that can be seen by staining the cell with a dye. The functions of many cell structures are not yet understood.

One important structure of the cytoplasm is the centrosome. It is located near the nucleus of the cell. The centrosome is very active during cell mitosis (reproduction or division) and is often referred to as presider of cell division.

Figure 23. A Cell and Its Landmarks.



Nonliving substances as food and wastes are also located in the cytoplasm. Foods are the building blocks for the growth of new tissue and maintenance and repair of old tissue. Examples of nutritive chemicals are oxygen, carbon, hydrogen, sodium, albumin, iron, and calcium. They are derived from foods containing carbohydrates, fats, proteins, vitamins, and minerals. As metabolic activities process chemical elements, the chemicals are used up and cause wastes. The cell's outer boundary, the cell membrane, allows for movement of these food deposits and waste products from outside to inside or visa versa. This action or process of the cell membrane is called selective permeability and is a characteristic of animal cells.

Figure 24. Examples of Foods and Their Chemical Nutrients Needed by Cells.

Raw Food Source	Nutrient Source of Cell Food Substance	Chemical Foods Needed by Cell
	Carbohydrates	
sugars starches		carbon, hydrogen oxygen
fruits honey		glucose fructose
milk		glactose lactose
	Fats	
fats		fatty acids lecithin, caphalin, acetylcholine cholesterol
	Proteins	
eggs milk		albumin lectalbumin
peas lentils		legumin
wheat		glutelins
eggs, milk, cheese, meat wheat		23 amino acids
	Minerals	
milk vegetables		calcium
salt		sodium
eggs, meat cereal		iron
water, seafood iodized salt		iodine
	Vitamins	
rice	B	thiamine propyrophophate cocarboxylase
butter milk eggs	D	7-dehydrocho- lestrol ergostrol

The cell's nucleus is generally located in the center of the cell and has a nuclear membrane as its boundary. Its function is differentiated from other protoplasm. The protoplasm of the nucleus is called nucleoplasm. It contains or houses the important functional parts of the cell. The major components are 46 chromosomes. Each chromosome contains DNA (deonyribonucleic acid) which is composed of several chemicals. These chemicals form a ladder-like structure of tens of millions of rungs. The rungs follow each other in a predetermined manner. A complex of rungs constitute a gene. It takes 500-2000 rungs to form one gene. Genes are directly responsible for heredity and metabolic activity of the cell and the organism.

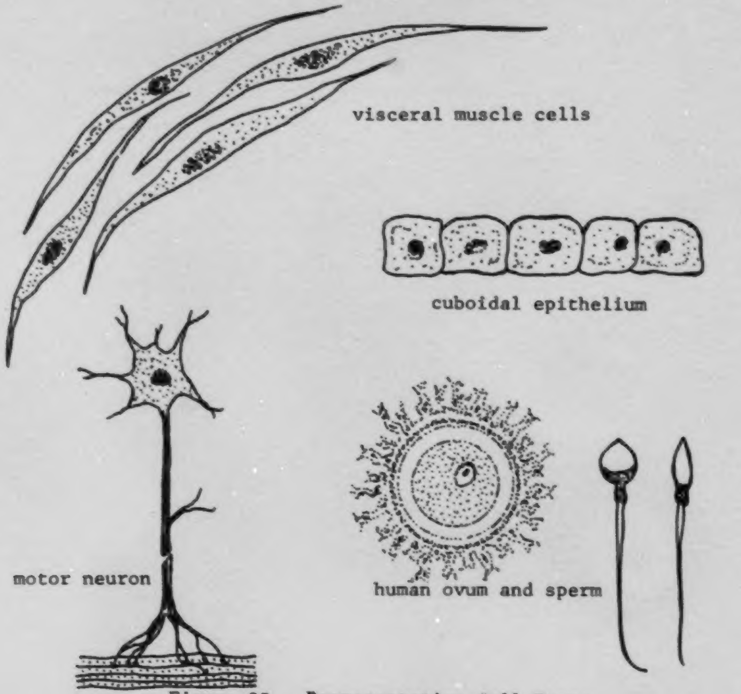

visceral muscle cells
cuboidal epithelium
motor neuron
human ovum and sperm

Figure 25. Representative Cell Types

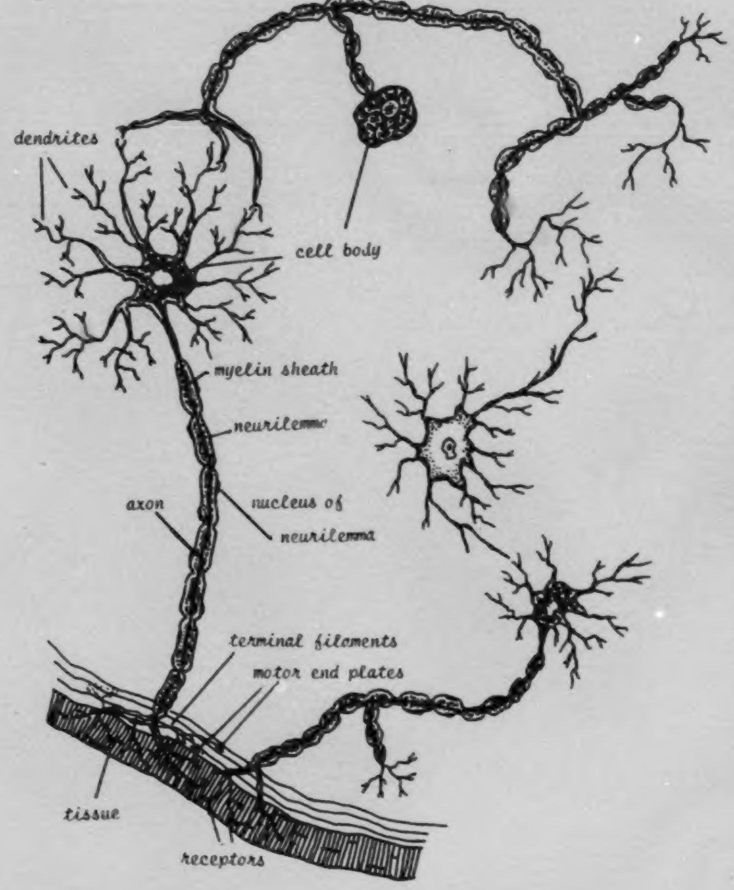

dendrites
cell body
myelin sheath
neurilemma
axon
nucleus of
neurilemma
terminal filaments
motor end plates
tissue
receptors

Figure 26. Demonstrates Connecting Neuron Network

#2 NEURON CELLS - OUR BODY'S COMMUNICATING SYSTEM

Neurons are the cells composing the CNS. The neurons form a network of communication throughout the body which regulates body functions and cognitive processes. The neuron is basically constructed as other cells and has the same type metabolic processes and enzyme reactions. The neuron has a cell body and nucleus containing protoplasm. The soma - cell body is a vital part of the neuron.

Insult to the soma of neurons has more devastating impact on cognitive and body activities than damage to other cells. Neurons are generally incapable of regeneration. If the soma is damaged by inter or intra cellular imbalances or by extracellular toxic agents as some infections, the nucleus and the fibers of the neuron can potentially be affected. Paralysis of muscles will follow when motor neurons are injured or necrotized (pathologic death of one or more cells). Impulses are interrupted and unable to reach the muscle. The communication pathways have been severed. If significant necrosis occurs in the cerebral cortex in the cognitive area, brain damage and/or mental retardation results. Nerve cells in adults are unable to multiply or reproduce. In neonates and children brain cells are multiplying. Therefore resulting injury or necrosis of neurons cause lesions that inhibit cell growth and intercellular pathways.

Groups of neurons appear gray and make up most of the gray matter of the brain and spinal cord.

A neuron has two processes distinguishing it from other cells. The two processes, the dendrite and the axon, extend from the cell body and transport messages to other tissue. The dendrites carry the impulse toward the cell while the axon carries the message away from the cell. Dendrites are usually short treelike branches whereas the axon may be very short or two to three feet long. The axon terminates in a number of fine branches referred to as terminal filaments. At the end organ, the terminal filaments form motor end plates which make contact with the connective tissue. The dendrites of sensory neurons have sensory receptors that communicate with the connective tissue. These communicating areas either convey stimulus toward the CNS (sensory neurons) or receive impulses (motor neurons). Nervous impulses pass over a set of neurons by coming from the axon of one cell to the dendrite of another. The point at which the impulse passes from one neuron to another is termed the synaptic junction. This is where the terminal filaments of one neuron come into close approximation to the body and dendrites of another.

The filaments of the axon are not covered with myelin as is the rest of the nerve fiber. The myelin forms a protective sheath that covers some nerve fibers (axons). Around the myelin there is another protective sheath called the neurilemma. It appears that the neurilemma's cell body nourishes the fibers and its nucleus plays a role in nerve regeneration. This may be the reason that injured nerves of the brain and cord are unable to regenerate since they are myelinated but have no neurilemma.

#3 NERVES - GROUPS AND GROUPS AND GROUPS OF MESSENGERS

Nerves are composed of a bundle of axon fibers that are made separate and distinct by connective tissue. Most nerves contain both motor and sensory neurons. The nerve fibers radiate from the brain and the spinal cord. The spinal cord serves as the collective housing for future channeling of the fibers. This is accomplished by the fibers branching from the cord into 31 pairs of spinal nerves which extend to the periphery of the body. If a nerve is severed the fibers it houses are separated from the nucleus and degenerate. If regeneration is possible the axis fiber grows from the cell body into the old neurilemma of the severed axon. Fibers of the spinal cord and brain tract lack neurilemma and therefore will not regenerate.

GROWING: A GAMBLE

The central nervous system is quite vulnerable to many agents that have the potential to cause brain damage and/or mental retardation. They can be of inter or intra cellular imbalances as

endocrine disorders
genetic metabolic disorders
symptomatic metabolic disorders

or be extracellular in nature as

infections
toxic drugs.

The immature nervous system is much more vulnerable to these agents then the mature system of the adult. In fact, the younger the child or infant the greater the gamble that these agents can cause devastating results. In the case of infections, the gamble also increases with the fact that infant's and children's immune systems are immature. Therefore, the younger the child the less natural body defenses are available to combat infection. It is important to remember that many invaders and imbalances involving the CNS, particularly at a young age, can result in brain damage and/or mental retardation. Prevention of these assaults depends somewhat on understanding the functions of metabolism and the immune system. Each system will be reviewed before detrimental agents to these processes are considered.

Metabolic functions refer to a group of processes performed by living forms in order to maintain life. In animals these processes result in formation of protoplasm and cause the release of chemical energy. Examples of metabolic processes are:

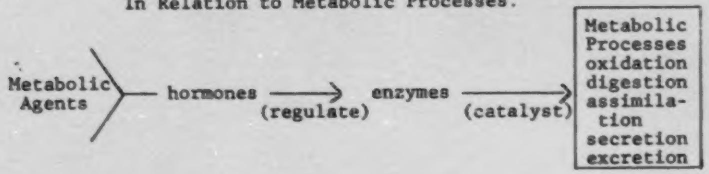
oxidation -	process of combining an element with oxygen.
digestion -	process of converting ingested food into simpler compounds for assimilation.
assimilation -	the taking up of nutriment by the body tissues in such a manner that it becomes part of them.
secretion -	a substance formed by glandular cells.
excretion -	process of removing waste products from the tissues.

In order to perform these processes two substances are needed:

enzymes
and
hormones.

Enzymes are by-products of cells and act as the catalyst for chemical reactions. Hormones are the chemical regulators of enzymes. Most hormones are internal secretions of the endocrine glands. Some hormones are produced by cells, groups of cells, or parts of a specific cell.

Figure 27. Schematic Representation of Metabolic Agents In Relation to Metabolic Processes.



Three types of malfunctions can occur in these metabolic processes; endocrine imbalances, genetic disorders, or symptomatic disorders. All three of these may exist at birth. Their greatest difference is in the cause of the malfunction in the metabolic system. Endocrine imbalances occur because of a problem in the hormonal gland's functions. An endocrine malfunction may or may not be inherited. In genetic disorders there is a history of the disease occurring in a family and it is passed on to family members by a defective gene at conception. Symptomatic disorders are a result of another disease as endocrine imbalances or inborn errors of metabolism.

GAMBLE #1

METABOLIC MALFUNCTION

ENDOCRINE IMBALANCES

"Prevention"

The endocrine glands produce and secrete a hormone or several hormones into the bloodstream. These hormones are the chemical messengers to the enzyme systems. Each hormone has a target area reached by traveling through the blood. This area can be: specific or diffuse; to another gland; to cells; or to cellular tissues. For example, the thyroxine hormone from the thyroid gland has a diffuse target area effecting cellular metabolism. Its specific effect is accelerating the oxidative enzyme system causing an increased amount of oxygen available to the cells. If thyroxin levels fluctuate the entire body is effected. In contrast, the thyrotropic hormone from the pituitary gland has a very specific stimulatory effect on one area, the thyroid gland.

Although each hormone has its own particular effect, all the endocrine glands are interdependent. All together the endocrine glands weigh no more than 5 ounces. They are "little giants" for they regulate the body's growth, sexual maturation and its ability to reproduce.

Figure 28 illustrates the endocrine glands which must remain in a delicate balance of function - like salt in a stew - or the entire body will be thrown out of kilter with possible mental impairment.

Figure 29 outlines some of the normal functions of the endocrine glands pictured in figure 28

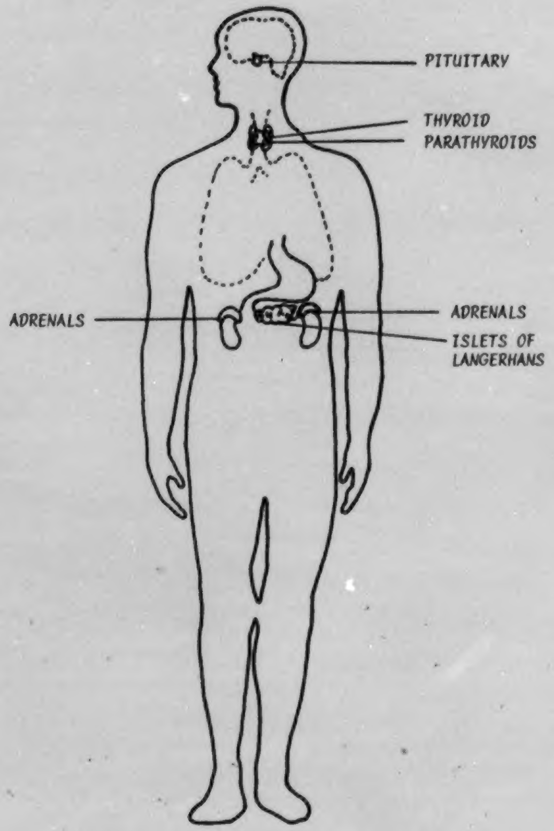


Figure 28. Endocrine glands of the body which must function well to prevent mental retardation in the growing child.

Figure 29. Endocrine Glands Vital to Normal Mental Development and Their Functions Which Are Vital to Mental Growth.

Source of Hormone	Principal Hormones	Normal Functions
PITUITARY (The "Master" Gland)		
Posterior	Oxytocin Vasopressin	Initiates labor. Regulates flow of blood.
Anterior	Somatotropin (STH)	Regulates hormone production of other glands.
	Thyrotropic (TSH)	Stimulates thyroid to manufacture thyroxine.
	Adrenocorticotropic (ACTH)	Stimulates steroid hormone production by adrenal cortex.
	Lactogenic (LTH)	Stimulates secretion of breast milk after childbirth.
	Follicle-stimulating Hormone (FSH)	Stimulates sperm and egg production.
	Lutinizing Hormone	Triggers production of progesterone and androgen.
THYROID	Thyroxine	Accelerates the oxidative enzyme system.
PARATHYROIDS	Parathormone (PTH)	Regulates calcium levels in the blood.
ADRENAL GLANDS		
Medulla (Inner Gland)	Norepinephrine	Regulates flow of blood.
	Epinephrine	Stimulates emergency energy.
		Regulates blood flow.
Cortex (Outer Gland)	Glucocortoid	Converts fat and protein into substances which are then converted to glucose.
	Mineralocortoids	Regulates water and mineral balance.
	Gonadocortoids	Regulates the development of sex organs.
	Cortisones Coritcosterone	Control inflammation. Facilitate tissue repair. Initiate antibody production.
ISLETS OF LANGERHANS (Pancreas)	Insulin	Regulates the amount of sugar available for cells metabolism.
	Glucogen	Prevents insulin from lowering the blood sugar excessively.

Cause of endocrine abnormalities. Endocrine problems may be caused by genetic disease or may develop and manifest themselves soon after birth or may develop from malfunction of one of the endocrine glands anytime during the growth and development of a child. (As well as in later life.) Hormone deficiencies often develop gradually so that the condition may not be noticed until it is well advanced. A particular gland may be

1. nonfunctioning
2. underfunctioning
3. overfunctioning

   or

4. its functioning may be interrupted.

Detection of endocrine abnormalities. Malfunctioning or nonfunctioning of these vital glands can be detected by

1. blood tests for the hormone
2. urine tests for the hormone
3. radioactive tagging of the hormone
4. observing changes in skeletal growth.

Endocrine abnormalities detected at birth or soon after, as well as in the growing child need prompt attention of the infant's physician and often that of a consulting endocrinologist.

Prevention of mental retardation by treatment. Endocrine abnormalities detected at birth or soon after can often be treated thus preventing mental retardation in the growing child. Such malfunctioning can be devastating to the developing brain and body so that it is of vital importance that endocrine disease be detected and treated rapidly.

For example, if the thyroid gland is nonfunctional or does not excrete sufficient amounts of thyroxin for normal growth and development irreversible damage to the central nervous system can take place by the third month of life even though symptoms of the disorder including mental retardation may not be apparent well beyond three months of age and often not until six years of age. Hypothyroidism was one of the first recognized and clearly definable causes of mental retardation. Usually endocrine disorders, particularly those of the thyroid and pancreas can be successfully treated with synthetic, animal or human hormones. However, if treatment is delayed beyond three to seven months of age 85% of these individuals will have permanent mental retardation.

EXPERT AND IMMEDIATE DIAGNOSIS AND TREATMENT IS THE KEY TO THE PREVENTION OF MENTAL RETARDATION IN ENDOCRINE DISORDERS IN INFANTS AND CHILDREN COUPLED WITH THE PARENTS OF THE CHILD COMMITTED TO DAILY HORMONE SUPPLEMENTS AND OTHER COMPONENTS OF TREATMENT.

FIGURE 30 SUMMARIZES ENDOCRINE DISORDERS WHICH MAY RESULT IN MENTAL RETARDATION. ADVERSE EFFECTS ON THE BRAIN AND CENTRAL NERVOUS SYSTEM ARE EMPHASIZED AS WELL AS THE PREVENTION OF THOSE EFFECTS.

Figure 30. Endocrine disorders which may result in mental retardation which are preventable by treatment.

Endocrine Gland	Disorder	Symptoms	Cause	ADVERSE EFFECTS	PREVENTION OF MENTAL RETARDATION
Pituitary	Insufficiency	Growth arrest. Genetalia abnormalities in infant.	Genetic. Tumors. Infections. Cysts.	LACK OF STIMULATION OF ADRENAL AND THYROID GLAND (EFFECTS LISTED BELOW). HYPOGLYCEMIA.	HORMONE SUPPLEMENTS TO OTHER GLANDS WHICH ARE STIMULATED BY THE PITUITARY. GROWTH HORMONE SUPPLEMENT.
Thyroid	Insufficiency (Hypothyroidism)	Infant: Symptoms may be absent. Low heart rate, respiration, blood pressure. Decreased activity & appetite. Protruding tongue. Infant to 3 years: Failure to grow and sluggish. Slow heart rate.	Maternal radiation. Sporadically in patterns of inheritance. Goiter. Enlargement or extra tissue of the gland.	CENTRAL NERVOUS SYSTEM AND NEUROMUSCULAR DAMAGE. DAMAGED BRAIN PROTEIN AND NEURAL TISSUE. MENTAL RETARDATION. HYPOGLYCEMIA.	THYROXINE SUPPLEMENT (70% RECEIVING TREATMENT BEFORE 3 MONTHS REACH AN INTELLIGENCE QUOTIENT OF 85 OR ABOVE). (IN INDIANA HOSPITALS, NEWBORNS ARE ROUTINELY SCREENED FOR THYROID MALFUNCTION.)

Figure 30. Endocrine disorders which may result in mental retardation which are preventable by treatment. (continued)

		After 3 years: Deteriorating of academic, motor and social performance. Listless and obese. Puffiness of the face.		INCREASED BLOOD FLOW TO BRAIN. INCREASED OXYGEN CONSUMPTION. BEHAVIORS ARE MANY TIMES INCOMPATIBLE WITH OPTIMUM LEARNING AND ADJUSTMENT TO THE CLASSROOM. PSYCHOTIC REACTIONS AND SEIZURES. MAY APPEAR TO BEHAVE AS A RETARDED CHILD.	SHOULD BE FIRST CONSIDERATION IN HYPERACTIVITY AND ITS TREATMENT.
	Excess (Hyperthyroidism)	Infant: Irritable and hyperactive. Loss of weight and nervous. Young Child: Hyperactive. Distractible. Emotional fluctuation. Short attention span. Impulsive. Insomnia. Older Child: Anxious. Restless. Poor attention. Hyperactive.			

Figure 30. Endocrine disorders which may result in mental retardation which are preventable by treatment. (continued)

Parathyroid	Insufficiency	Infancy to 4 years: Difficulty in breathing. Muscle cramps. Vomiting. Seizures. Repeated muscle contractions. Tremor. Blue color from reduced hemoglobin in the blood. Noisy respiration.	Genetic Acquired	LOW BLOOD CALCIUM AND HIGH BLOOD PHOSPHOROUS. FREQUENTLY HAVE OTHER ENDOCRINE INSUFFICIENCIES. ANEMIA. MENTAL RETARDATION.	PARATHYROID SUPPLEMENT. LARGE DOSES OF CALCIUM.
	Excess	Listless. Nausea. Vomiting. Constipated. Weak. Aversion to food.	Small cysts on glands	INCREASE OF CALCIUM AND PHOSPHORUS IN THE TISSUES, BLOOD & BRAIN. CALCIUM DEPOSITS IN THE BRAIN. PRESSURE IN THE BRAIN. MENTAL RETARDATION.	SURGICAL REMOVAL OF PART OF THE PARATHYROID AND CALCIFIED AREAS OF THE BRAIN.
Adrenals	Insufficiency	May occur at any age: Apathy. Listless.	Genetic Acquired: Hemorrhage.	SODIUM, POTASSIUM, CALCIUM (HYPOGLYCEMIA) AND GLYCOGEN.	HORMONE SUPPLEMENT. BALANCE THE BODY'S ELECTROLYTES.

Figure 30. Endocrine disorders which may result in mental retardation which are preventable by treatment. (continued)

		Vomiting. Seizures. Anxious. Fatigue. Failure to gain weight. Personality change.	Infection. Trauma. Atrophy. Insufficient pituitary secretion.	IMBALANCES RESULTING IN SYSTEM DAMAGE.	RESTORE BLOOD SUGAR LEVEL.
	Excess	Anxious. Restless. Insomnia. Hyperactive. Euphoria.	Benign tumor. Increased # of cells in the Adrenal Glands.	MENTAL RETARDATION	STEROID THERAPY. SURGERY. PITUITARY RADIATION.
Islets of Langerhans (Pancreas)	Insufficiency (Diabetes Mellitus)	8 to 10 years: Hypoglycemia. Headache. Dizziness. Irritable. Blurred vision. Nausea. Vomiting. Fast heart rate. Sweating. Cold hands and feet.	Malfunction of pancreas in regulating carbohydrate metabolism in which lack of insulin does not allow movement of glucose into cells & cannot change it to be stored as	HYPOGLYCEMIA (LOW BLOOD SUGAR) REPEATED OR PROLONGED RESULTS IN PERMANENT NEUROLOGIC DAMAGE WITH INTELLECTUAL, BEHAVIOR AND MOTOR DEFICITS. MENTAL RETARDATION.	INSULIN. PLANNED AND REGULAR DIET AND EXERCISE.

Figure 30. Endocrine disorders which may result in mental retardation which are preventable by treatment. (Continued)

			gylcogen so it is eliminated and body cells do not have a source of energy. The brain has an absolute requirement for glucose which cannot be substituted by using fatty acids.		

In general parents should consider these three groups of symptoms in a variety of combinations as possibly being related to endocrine malfunctioning.

ENDOCRINE MALFUNCTION WARNING SIGNS.

Group I
- GROWTH THAT IS TOO SLOW.
- A LACK OF ACTIVITY, FATIGUE, LISTLESSNESS.
- LACK OF APPETITE.
- WEAK AND LACK OF MUSCLE TONE.
- DECREASE IN ACADEMIC, MOTOR AND SOCIAL PERFORMANCE.

Group II
- GROWTH THAT IS TOO RAPID.
- INCREASED ACTIVITY AND RESTLESSNESS.
- ANXIETY.
- INSOMNIA.

Group III
- VOMITING AND NAUSEA.
- HEADACHE AND DIZZINESS.
- SEIZURES.
- EXCESSIVE SWEATING.

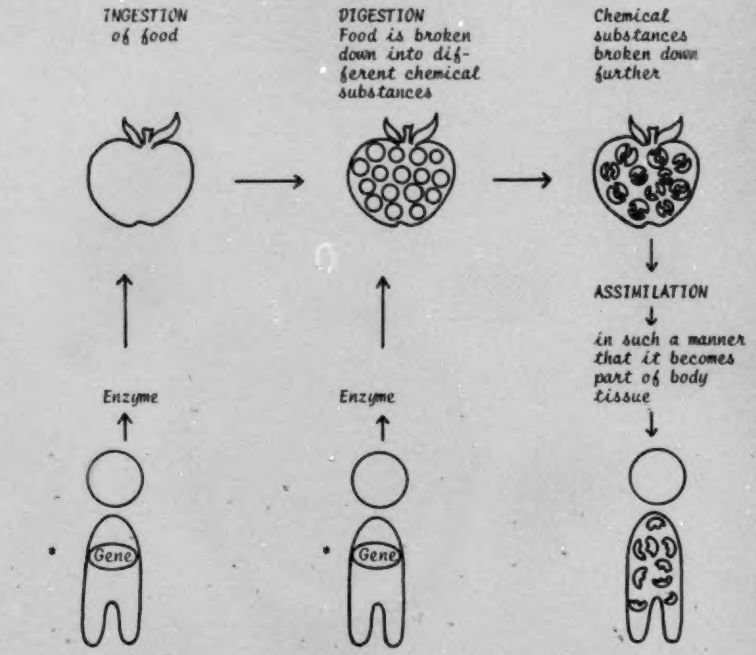
It is extremely important that the cause of the "symptoms" be treated versus merely treating the symptoms. Prolonged symptom treatment will delay getting to the real cause of the symptoms and put the child at risk of permanent damage.

TREATMENT OF ENDOCRINE DISORDERS CAN BE RELATIVELY SIMPLE AND DRAMATIC. IGNORING THEIR "WARNING SIGNS" CAN BE EQUALLY DRAMATIC IN DEVASTATION TO THE CENTRAL NERVOUS SYSTEM. THEIR NORMAL FUNCTIONING NOT ONLY PREVENTS POTENTIAL MENTAL RETARDATION, BUT MAY ALSO INHIBIT THE DEVELOPMENT OF LEARNING PROBLEMS, HYPERACTIVITY AND BEHAVIOR PROBLEMS.

GENETIC DISORDERS

"Prevention"

Figure 31. What Goes Wrong in the Metabolism of Food When an Infant or Child has an "Inborn Error of Metabolism."


INGESTION of food
DIGESTION Food is broken down into different chemical substances
Chemical substances broken down further
ASSIMILATION
in such a manner that it becomes part of body tissue
Enzyme
Enzyme
Gene
Gene

A specific gene is a messenger and regulator for enzyme action on a specific nutrient.

A specific gene is a messenger and regulator for enzyme action on the different chemical substances resulting from digestion.

The end product is absorbed and utilized by the body.

**Anywhere in this process of breakdown of nutrients for the body's use there may be a defect in a gene which is a messenger and/or regulator of enzyme activity resulting in a build-up of any of the partially converted nutrients before they reach the point where they are ready to be absorbed and utilized by the body.*

Is diet the only treatment parents must consider to prevent mental retardation in an infant or child with inborn errors of metabolism? No!

"The infant or child is what he eats" but sometimes we must interfere with how the infant or child is using the nutrients he or she is taking into the body to prevent subsequent mental retardation.

WHY?

and

HOW?

Enzymes act as catalyst for the life processes of the cell, both internally and externally. Genes are the determiners of abnormal or normal enzyme activity in each of the billions of cells of the human body. The cell is a remarkable miniature of life's functions -- it grows
it moves
it reacts
it protects itself
it reproduces.

The cell is like a well organized or disorganized industrial complex. A cell is capable of carrying out over a thousand different chemical reactions but each reaction requires its own specific enzyme. When the chemical change is completed the enzyme is released from the reaction unchanged. *THE IMPORTANT THING TO REMEMBER IS THAT EACH CHEMICAL CHANGE CAN OCCUR ONLY IN THE PRESENCE OF A SPECIFIC ENZYME OF THE RIGHT QUALITY AND IN THE RIGHT QUANTITY.*

More than 120 specific enzyme defects have been identified out of the 400 inborn errors of metabolism which have been catalogued or named.

When nutrients -- carbohydrates, fats, proteins, minerals, vitamins and water are taken into the body, enzymes go to work immediately to break down those nutrients into substances which the body can easily and readily absorb and use. (See figure 31) However if there is an enzyme defect, either in quality or quantity, the metabolism is affected and one or more nutrients may not proceed along a normal path. The final result may be the expression of a genetic caused disease which has as one of its manifestations mental retardation. Figure 31 is a very simplified picture of this problem.

In the unit on the mother and father as dietitian and their role in the prevention of mental retardation in the growing child, dietary treatment of inborn errors (gene defects) of metabolism is discussed.

But there are other ways in which some of these genetic diseases must be treated so that the genetic disease will not fully manifest itself and cause mental retardation.

Other Ways In Which Some Genetic Diseases Must Be Treated.

#1. Getting rid of undesirable metabolites that build up in the body. (Chelation is the scientific word.)

Besides modifying the diet when a metabolism error exists it may also be necessary to give the infant or child a drug or "chelating agent" which binds itself to the substance and is then eliminated in the urine. In figure 35 on page 130 you can see that this is the treatment in Wilson's Disease in which an excess of copper is being deposited in the brain and liver.

#2. Supplementation of nutrients can counteract the lack of nutrients from genetic disease. Specific forms are needed for absorption and use. Figure 32 outlines some (genetic) metabolic deficiencies which are treatable in part by supplementation of diet. Without supplements and dietary control mental retardation can result. The first three of these disorders are probably familiar; the last four may sound like "Greek", but the same principles apply.

Figure 32. Some Conditions Treatable (in part) by Supplementation of Diet for Deficiencies Occurring in Genetic Disease Resulting in Mental Retardation.

Disorder	Supplement
Phenylketonuria (PKU)	Tyrosine
Diabetes Insipidus	Water
Low Blood Sugar (Hypoglycemia)	Glucose
Isovalericacedimia	*Glycine*
Citrullinemia	*Argine*
Argininosuccinicaciduria	*Argine*
Oroticaciduria	*Uridine*
Fructose Intolerance	*Phosphate*

#3. Supplementation of vitamins or an altered form of a vitamin.

Supplementation may prevent mental retardation when

a. there are abnormalities in the transport of a vitamin.
b. stimulation of other metabolic processes are needed to compensate for the defective ones.
c. a coenzyme, with a vitamin as part of its make-up, is needed to stimulate a defective enzyme into action; or when the coenzyme is impaired.

Figure 33 outlines some examples of conditions responsive to vitamin supplementation which can result in mental retardation.

Figure 33. Conditions Responsive to Vitamin Supplementation Which Can Result in Mental Retardation.

Condition	Vitamin Supplementation
Hartnup's Disease	Nicotinic Acid
Maple Sugar Urine Disease	Thiamine
Pyridoxine-dependent Seizures	Pyridoxine
Homocystinuria with Methylmalonicaciduria	B12

#4. Substitution. When an infant or child's tolerance to a nutrient such as protein is extremely low, a substitute may have to be used to replace the nutrient. This provides the essential nutrient components without overloading the metabolic processes which his or her body cannot handle. A genetic disease which results in mental retardation if not treated with diet alteration is hyperammonia. However, in severe or chronic hyperammonia a substitute for nitrogen food sources must be made with keto-acid derivatives of amino acids.

#5. Replacement of enzymes orally is used in the treatment of Diabetes Insipidus.

Appropriate medical treatment of these disorders is paramount. Optimum treatment includes: eliminating, supplementing, substituting nutrients; or replacement of enzymes; and the treatment of symptoms or accompanying problems. Examples of possible treatment of problems accompanying genetic disorders resulting in mental retardation are

correction of electrolyte imbalances
correction of fluid imbalances
antibiotics
transfusions
dialysis
surgery-by-pass
neuro chemical agents such as anticonvulsants.

THE PARENTS OF AN INFANT OR CHILD WITH AN INBORN ERROR OF METABOLISM SUCH AS PKU MUST REALIZE THAT EXPERT CARE OF THE EFFECTED INDIVIDUAL MAY NOT ONLY INVOLVE AN ALTERED DIET (WHICH MUST BE STRICTLY ADHERED TO AND MONITERED), BUT ALSO ADDITIONAL OR ALTERNATE WAYS OF TREATING THE GENETIC DISEASE AND ITS ACCOMPANYING SYMPTOMS OR MANIFESTATIONS. THIS WILL REQUIRE A TEAM APPROACH OF A PHYSICIAN, DIETITIAN, LABORATORY PERSONNEL, MEDICAL SPECIALISTS AND A SOCIAL WORKER. SUCH EXPERT TEAMWORK IS VITAL TO SUPPORT THE CHILD IN THE DEVELOPING YEARS, ESPECIALLY FROM BIRTH THROUGH SIX, SO THAT THE CHILD CAN GROW AND LEARN WITH AS LITTLE DAMAGE TO THE BRAIN AS POSSIBLE.

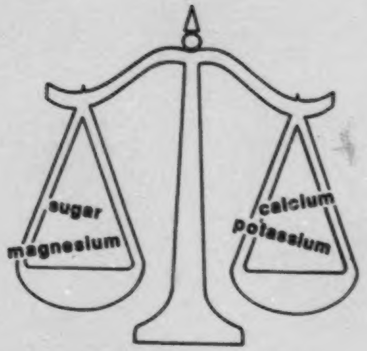


Figure 34. A Scale Symbolically Representing The Delicate Balance of Calcium, Potassium, Sugar, and Magnesium Needed By The Body to Function Normally.

SYMPTOMATIC DISORDERS

Figure 35 outlines symptoms, causation and preventative aspects of the symptomatic disorders of metabolism. These disorders all have the potential of causing brain damage and/or mental retardation if untreated.

Figure 35. Metabolism disorders which may result in Mental Retardation which is preventable by immediate treatment.

Nutrient or Mineral	Disorder	Symptoms	Cause	ADVERSE EFFECTS	PREVENTION OF MENTAL RETARDATION
Glucose	Insufficient glucose (Hypoglycemia)	Infant: frequent seizures. 6 mo. to 2 yrs.: Hunger. Nausea. Dizziness. Headache. Sweaty. Double vision. Apathy. Confusion. Disorientated. Agitation. Loss of muscle coordination.	Infant: Mother's malnutrition. Drop in infant's body temperature. Endocrine disorder. Liver malfunction. Young Child: Genetic. Sugar malabsorption.	BRAIN DAMAGE RESULTING FROM LACK OF CONSTANT ENERGY SUPPLY IN THE FORM OF GLUCOSE TO THE BRAIN. PERMANENT SEIZURE DISORDER IF THERE IS A DELAY IN DIAGNOSIS & CONTROL. MENTAL RETARDATION.	CONSIDERED A MEDICAL EMERGENCY. RESTORE GLUCOSE LEVEL OF THE BLOOD AND DETERMINE UNDERLYING CAUSE OF INSUFFICIENT GLUCOSE. (IN INDIANA A NEWBORN'S GLUCOSE LEVEL IS CHECKED ROUTINELY.)
Calcium	Insufficient calcium (Hypocalcemia)	Infant: Repeated muscle contractions. Seizures which may be the primary or only symptom of insufficient calcium. Young Child: Convulsions. Jitteriness. Other electrolytes imbalanced. Speech difficulties. Older Child: Headaches. Personality change. Neurotic or psychotic behavior. Poor social, academic motor-performance.	Infant: Maternal endocrine abnormalities and/or toxemia. Infant endocrine abnormalities. Older Child: Kidney malfunctioning. Malnutrition. Endocrine abnormalities.	OVER EXCITES MEMBRANES OF NEURONS OF CENTRAL NERVOUS SYSTEM. INCREASED PRESSURE WITHIN THE BRAIN. CENTRAL NERVOUS SYSTEM DAMAGE IF DIAGNOSIS AND TREATMENT IS DELAYED. MENTAL RETARDATION.	PROMPT RESTORATION OF BLOOD CALCIUM LEVELS AND DETERMINE UNDERLYING CAUSE.
	Excess Calcium (Hypercalcemia)	Gastrointestinal disturbance. Failure to thrive.	Excess intake of Vitamin D. Immobilization. Adrenal, parathyroid or thyroid disorder.	PROFOUND CHANGES IN THE CENTRAL NERVOUS AND NEUROMUSCULAR FUNCTION. MENTAL RETARDATION.	PROMPT CORRECTION OF CALCIUM LEVELS AND DETERMINE UNDERLYING CAUSE.
Magnesium	Insufficient magnesium	Seizures (which may be induced by sound.) Confusion. Agitation. Facial spasm brought on by slight tap of facial nerve.	Malabsorption. Malnutrition. Insufficient magnesium intake.	OVER EXCITES NERVOUS SYSTEM AND NEUROMUSCULAR SYSTEM. REPEATED SEIZURES OVER A LONG DURATION MAY RESULT IN BRAIN DAMAGE.	PROMPT CORRECTION OF BLOOD LEVELS OF MAGNESIUM & DETERMINE UNDERLYING CAUSE. SOMETIMES INSUFFICIENT

Figure 35. Metabolism disorders which may result in Mental Retardation which is preventable by immediate treatment.

Figure 35. Metabolism disorders which may result in Mental Retardation which is preventable by immediate treatment.

					MAGNESIUM LEVELS WILL ONLY NORMALIZE WITH RESTORED CALCIUM LEVELS.
	Excess magnesium	Lack of muscle tone. Weakness.	Kidney disorder. Overdosed mother with magnesium sulfate for toxemia.	DEPRESSION OF THE CENTRAL NERVOUS SYSTEM & NEUROMUSCULAR SYSTEM. DEPRESSION OF BLOOD PRESSURE AND RESPIRATION. MENTAL RETARDATION.	RESPIRATORY SUPPORT TO PREVENT BRAIN DAMAGE. REDUCE BLOOD MAGNESIUM. DETERMINE UNDERLYING CAUSE.
Copper	Excess (Wilson's Disease)	Unsteady, wobbly gait. Tremors. Indistinct speech. Difficulty in swallowing.	Genetic defect in copper metabolism.	DEGENERATIVE CHANGES IN THE BRAIN DUE TO STORAGE OF EXCESS COPPER IN BRAIN & LIVER. MENTAL RETARDATION.	DRUGS TO BIND TO THE COPPER AND ELIMINATE IT FROM THE BODY. DIETARY LIMITATION OF COPPER.

Recognition of symptoms and early treatment.

As with endocrine disorders parents must know that a spectrum of symptoms may indicate a metabolic disorder which can have severe consequences on the intellectual development of the child. Again, the underlying causes of the symptomatic metabolic disorders must be determined as well as treatment begun without delay to prevent retardation in the child.

In general parents should consider these groups of symptoms, in a variety of combinations, as possibly being related to metabolic malfunctioning.

Group I	APATHY AND LETHARGIC MUSCLE WEAKNESS. DECREASE IN ACADEMIC MOTOR AND SOCIAL PERFORMANCE. PERSONALITY CHANGE AND CONFUSION.
Group II	JITTERINESS AND AGITATION.
Group III	HUNGER AND NAUSEA. HEADACHE AND DIZZINESS. SEIZURE. EXCESSIVE SWEATING.

IT IS EXTREMELY IMPORTANT THAT THE CAUSE OF THE "SYMPTOMS" BE TREATED VERSUS MERELY TREATING THE SYMPTOMS. PROLONGED SYMPTOM TREATMENT WILL DELAY GETTING TO THE REAL CAUSE OF THE SYMPTOMS AND PUT THE CHILD AT RISK OF PERMANENT DAMAGE.

NORMAL METABOLISM OF NUTRIENTS PREVENTS POTENTIAL MENTAL RETARDATION AND MAY HELP TO PREVENT LEARNING PROBLEMS, HYPERACTIVITY AND BEHAVIOR PROBLEMS.

GAMBLE®2

INFECTIONS

HOW DOES OUR BODY COMBAT THEM?

WHAT ARE THEY?

HOW DO THEY EFFECT THE CNS?

Body Defenses Vs. Microbes

Of the many infections that invade the body there are relatively few that affect the CNS. This is because:

1. The location of the CNS in our body and the protective coverings surrounding it.
2. Germs have a particular affinity for only specific kinds of tissues or cells and then the environment must be advantageous to them for their division and growth.
3. Body Defenses

1st line - Protective body coverings as the skin and mucous membranes of the upper and lower respiratory tracts.

2nd line - When cells are injured substances freed from the cells cause capillaries to leak lymph into the area causing inflammation and signalling phagocytes (white blood corpuscles - neutrophils and monocytes) to enter area and 1) form a barrier between infection and healthy tissue, 2) consume the infectious causing agent.

3rd line - If the germs pass into the lymph or blood capillaries, phagocytes in the lymph nodes engulf the infection before it can reach the bloodstream.

4th line - If the germs reach the bloodstream they are devoured by phagocytes in the lining of sinuses of the spleen.

5th line - THE IMMUNE SYSTEM

The immune system is what often tips the balance in favor of the host in the war against infections. This system produces proteins that are termed antibodies. Antibodies are specifically produced to inactivate the infectious agent or antigen that has invaded the body. Antigens are frequently proteins which are foreign to the body. Antigens can be infectious agents as virus or bacteria or may be drugs, foods, or other foreign material. Each antigen has its own unique chemical makeup and is effected by only one type of antibody. Conversely each antibody has only the capability of being effective against one type of antigen or infection. Each virus or bacteria has many strains and although they are similar each one is unique. Consequently, the body must manufacture antibodies effective against each strain of virus or bacteria that invades the body. This is why colds are so prevalent. There are 100 different cold viruses (adenovirus) identified and each virus has many strains. Therefore, to become immune to colds one would have to be infected by each virus and virus strain and build up a separate antibody for each. As this explanation indicates, once the immune system has been activated sufficiently to cause numerous antibody production, the body generally cannot be reinfected by the same virus or bacteria. This is called active immunity!

With all these defense mechanisms and the infectious agent's own selectivity, it appears that infections should be much less prevalent and less devastating. General health is an influencing factor. A variety of circumstances as exposure, improper nutrition, fatigue and maturity of the immune system can and do lower the body's resistance, thus, permitting these organisms to invade. This is particularly true in young children and infants whose own immune systems have not developed and those who are of high risk for infection:

low birth weight - 5½ lbs. or less
poor nutrition
allergies
fatigue
environmental exposure
unhealthful living conditions
unsanitary living conditions
excessive exposure to infectious diseases.

When infections do invade the body they have the potential of becoming virulent and devastating the CNS.

WHAT ARE THESE ORGANISMS?

WHAT KIND OF DISEASES DO THEY CAUSE?

Microbes

The organisms that can ultimately cause CNS involvement and result in brain damage and/or mental retardation are:

some types of virus; some types of bacteria; and a few types of fungi. These organisms are microbes and are classified protista. Protista are differentiated from animal and plant kingdoms in that they are individual, independent, unrelated cells. They do not have organized or specialized groupings of cells as the body's organs and tissues.

Bacteria and virus are part of the body's normal flora. Meaning that they exist in the body in harmony with other cells and cell tissues. Bodily defenses keep them in check. They only become virulent when there is a weakness in the defense mechanisms caused by poor nutrition, fatigue, exposure and disease. In fact, without bacteria our entire world would be different. Bacteria process all the dead organic matter in the world.

Virus are actually a subset of the protista kingdom. They are the link between living and nonliving matter. Virus are parasitic in nature and cannot live independently. They are dependent on living matter to reproduce - their main metabolic function. Virus can only parasitize certain cells, as bacteriophagus, virus that only exists in bacteria. Virus can only thrive on specific tissues of plants or animals.

Fungi are found in soil, food products and bodies of plants and animals both dead and living. Most fungi that parasitize man are capable of causing disease.

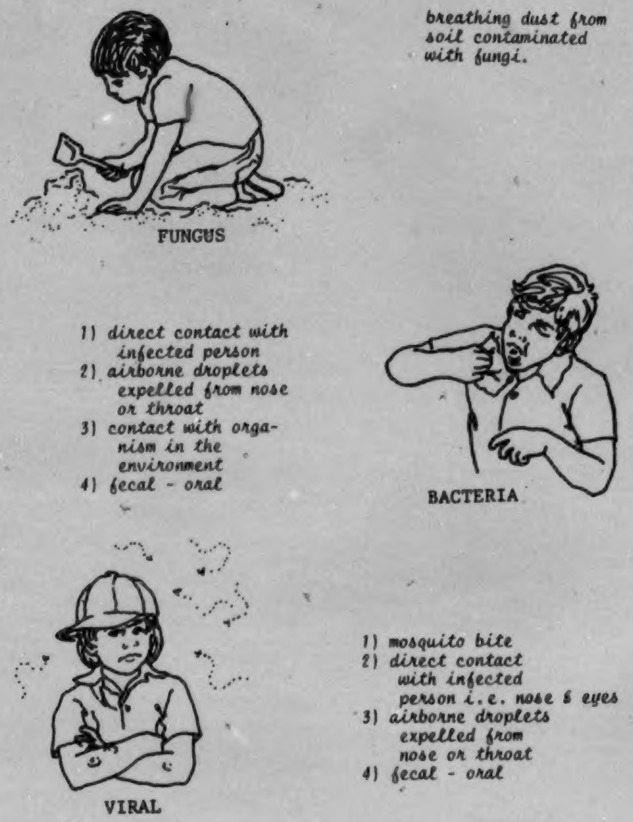

breathing dust from soil contaminated with fungi.
FUNGUS
1) direct contact with infected person
2) airborne droplets expelled from nose or throat
3) contact with organism in the environment
4) fecal - oral
BACTERIA
VIRAL
1) mosquito bite
2) direct contact with infected person i.e. nose & eyes
3) airborne droplets expelled from nose or throat
4) fecal - oral

Figure 35. Illustrates how microbes gain access to the body. Once past the body defenses they can multiply and cause necrotizing inflammations of the nervous system.

ENCEPHALITIS AND MENINGITIS

Encephalitis and meningitis are the two diseases affecting the CNS. They are caused by bacteria or viral infections or result as a secondary infection to a viral, bacterial, or fungus infection. Meningitis is an inflammation of the protective coverings of the brain and spinal cord. See figure 15. Encephalitis refers to inflammation of the brain. Involvement may also include the meninges and the spinal cord.

These inflammations can cause: destruction of the neuron cells and pathways; an edema or hemorrhage that can destroy or damage glial and neuron cells; lesions causing blockage of cerebral spinal fluid, resulting in hydrocephalus, a necrotizing action on neuron cells causing eventual death if untreated; or thickened meninges. These CNS insults can result in no mental impairment, minimal mental impairment, severe brain damage and/or mental retardation. In general, injury to the brain from infection has more widespread consequences than other single episodes of trauma.

Bacterial related meningitis is a life-threatening and potentially brain injuring infection. But it is treatable and preventive measures can be used. With detection and appropriate antibiotics mental retardation can be prevented.

Encephalitis in most cases, is secondary to numerous common childhood infections. These are generally viral infections such as chickenpox, measles, mumps, influenza and vaccinia. These and other childhood illnesses should never be taken lightly. Secondary encephalitis is not uncommon. Viruses are not responsive to antibiotics or other drugs, very little treatment is available other than: supportive therapy for development of the patient's resistance; and control of infection through the patient's immune system. Many of these viral infections are preventable through immunization as measles, mumps, rubella, and polio.

Figure 38. Some Infectious Diseases That Can Result in Encephalitis and/or Meningitis.

Viral	Bacteria
Influenza	Pnemococcal Pneumonia
Measles 💉	Hemophilus Influenzae, B Scarlet Fever
Herpes Simplex I	Erysipelas
Chicken Pox (Varicella Zoster)	Meningoccocal Cerebrospinal Meningitis (Meningococcus Meningitis)
Vaccina	Meningoccocal Sepsis
Mumps 💉	Bacillary
California Encephalitis 🦟	Pertussis-Whooping Cough 💉 Tuberculosis 🩹
St. Louis Encephalitis 🦟	Friedlanders Bacillus Pneumonia
Post-infection Encephalitis	
Equine Encephalitis 🦟	
Mycosis (Fungi)	
Hystoplasmosis 🩹	
Coccidiodomycosis 🩹	

💉 - preventable in general population by immunization.

🦟 - transmitted by insect bites, partially preventable.

🩹 - capable of detecting in early stage by skin test allowing for treatment and prevention of mental retardation

GAMBLE #3

TOXINS

.... Some medications, antiserums and vaccines can cause allergic-like reactions in a child. The mechanism involved is the immune system. Instead of a medication, drug, or vaccine being accepted by a child's body, his or her body reacts to it as an antigen (see immune system) producing antibodies. These antibodies oppose the drug as it would an infection. The chemicals resulting from antibody vs. antigen can cause necrotizing effects to the CNS and result in brain damage and/or mental retardation. Fortunately this happens infrequently - 1 in a 100,000.

The reaction may stem from trace components in the drug as: cell culture; egg protein, chick embryo vaccines; mercury preservatives; antibiotics; flavorings; or colorings. Hypersensitive reactions have occurred with the vaccine for rubella, pertussis (whooping cough) and diptheria-tetanus-pertussis. These reactions can be serious.

Mild adverse reactions are usually present with most vaccinations. These mild reactions would include induration and tenderness at the injection site, low grade fever, rash. These may occur within hours or to several weeks after vaccination. Vaccinations that have caused high febrile reaction 104°+, allergic reactions as; rhinitis, coughing, wheezing, anaphylactic shock, fainting, massive local reactions, considerable edema, induration, redness and tenderness should be discussed with the physician. Alternative vaccine or additional medication given after the vaccine may be warranted. These incidences of side effects and adverse reactions must be contrasted with the risk of the disease.

.... Medication administered inappropriately or without medical supervision (particularly over-the-counter drugs) can have effects on the CNS. Infants particularly are a high risk. Some drugs, if administered, could arrest the infant's growth, neurological and intellectual development. Drugs also have the potential of causing diarrhea, which could result in dehydration and possible mental retardation.

.... Older children may develop an insensitivity or hypersensitive reaction to a drug. This results usually after a drug has been administered in large amounts for a long period of time. This renders the drug inaffective for combating disease in that child.

Some drugs are toxic agents to specific cells or organs in the body. In general these types of drugs should not be used over a long period of time. Particularly without medical supervision.

Drug toxicity is related to dosage, length of treatment and presence of impaired kidney function. Therefore no drugs should be administered to a child without medical supervision. This includes over-the-counter and prescription drugs. Devastating results to a child's mental potential can result with improper drug management.

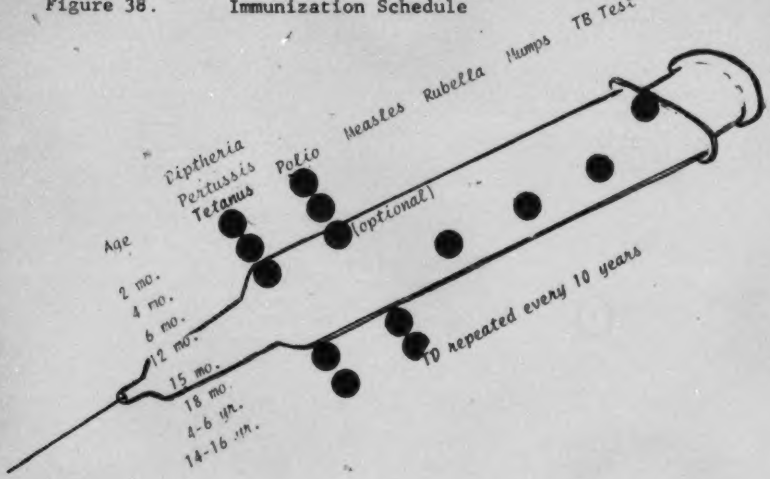
PREVENTION

"FULL HOUSE AND MORE"

IMMUNIZATION

The squared childhood illnesses in figure 38 are preventable by immunization. This a very simple procedure, an inoculation containing the dead virus or bacteria or attenuated live virus. It only requires going to a physician or clinic at scheduled times during the first few years of life. Although this involves relatively little time and little money 20 million children in the U.S. under 15 have not been immunized against one or more of the childhood diseases. Almost 40% of our children are in danger of catching seven serious diseases: tetanus, diptheria, pertussis (whooping cough) rubella, polio, and measles. Three of which have the potential of causing severe mental impairment.

Figure 38. Immunization Schedule



These inoculations stimulate antibody production just as if the individual had the disease. Once the immune schedule is completed immunity to these diseases are for life. This active immunity occurs just as if the child had actually contracted the disease.

IMMUNOGLOBULIN

Immunoglobulin and/or antiserum is also available for some infections. It affords passive immunity. This means the antibodies received in the inoculation are only effective for a short period of time. Antiserums contain antibodies from individuals or animals that have had the disease. Consequently they do not foster immune defenses to produce their own antibodies. They are given to a child when he has been exposed to an infection and requires short-term immunity to fight off the infection. This may be necessary for infants or weak children who have been exposed to a disease and have not received immunization or have: an auto immune deficiency; life threatening bacterial infections (given in conjunction with antibiotics); are premature; have disseminated malignancies. Immunoglobulin is effective for several disorders: mumps; measles; rubella; varicella (chicken pox) pertussis; some communicable types of hepatitis; tetanus; vaccinia; and herpes zoster.

ARBOVIRUS

Arbovirus are communicated by mosquitos that have bitten an infected bird or animal. The following preventive techniques should be utilized in the summer and fall. Since there is no specific treatment or vaccine prevention lies in effective control of mosquitos.

a) Elimination of breeding places and destruction of larvae.

b) Killing of mosquitos, by swatting and use of insecticide sprays.

c) Living and sleeping quarters should be screened.

d) Avoid exposure to mosquitos.

e) Use repellants and protective clothing when necessary-especially in evening hours.

DISEASE COMMUNICABILITY

Most infections are communicable by way of the air. This means coughing, sneezing, etc. has possibility of contaminating foods and air that are ingested or breathed by others.

Therefore prevention includes:

1. Following health practices of covering mouth when coughing or sneezing, utilizing handkerchiefs, disposal of contaminated handkerchiefs.
2. Handwashing cannot be overemphasized. Some diseases are communicable through feces - oral contamination, or contact with the eyes and nose of an infected individual.

GENERAL HEALTH AND NUTRITION

The body's general state of health is paramount in preventing disease. Poor nutrition, fatigue and exposure play a large role in susceptability to an infection. Children are not capable of taking full responsibility for seeing these nutritional and bodily needs are met. Therefore

1. Follow action checklist items relating to child nutrition in chapter II, The Parent in The Role as Dietitian.
2. Set the stage, so that children get an adequate amount of rest and/or sleep.

SIGNS AND SYMPTOMS OF ILLNESS

Prevention of mental retardation as a result of encephalitis, meningitis, metabolic disorders, toxic reactions, dehydration and/or other conditions lies in recognition of the illness early. Early detection leads to early treatment and less chance of complications leading to brain damage and/or mental retardation.

A physician is in the business of preventing disease and detecting problems as early as possible. Therefore it is important for parents to contact their doctor concerning significant changes in their child or baby's normal behavior. In most cases the infection or disorder will probably be minor and of no great concern; but for the few that are not so minor, medical care could make the difference between a whole and healthy child or one that has suffered irreparable brain damage.

Figure 39. Important Signs and Symptoms Requiring Prompt Action on a Parent's Part.

INFANTS

Contact Your Doctor

... If baby becomes pale or develops a yellow discoloration of his skin or whites of his eyes.

... If breathing is more rapid than usual or a child is gasping for breath.

... If the baby develops a persistent cough (occasional coughing is normal).

... If the baby is crying more than usual and/or if the cry seems different than usual.

... If soft spot (anterior fontanel) is bulging and tense or markedly sunken. The fontanel is normally soft and flat. Bulging may indicate meningitis, sunken may mean too much body fluid has been lost (dehydration).

... If the baby is more irritable than usual, fussing and fretting for much longer periods of time may indicate sickness.

... Lack of appetite may be early sign of developing sickness. This is indicated by lack of vigorous sucking reflex or infant's lack of interest in nursing.

... If there is marked change in normal sleeping.

... If there are explosive, frequent and watery stools (diarrhea). This may indicate an intestinal infection, food allergy, other physical problem. If diarrhea is not controlled dehydration can develop and result in mental retardation.

... If infant vomits more than one consecutive feeding-especially if vomiting is projectile.

... If baby develops a generalized rash over the body; if rash is causing weeping of the skin; if there are lesions that appear to have pus. Rashes around the diaper area, around neck and face are generally not emergencies. A doctor should be consulted during office hours if they are persistent.

... If an infant's stools are significantly fewer in number than normal pattern (as 4/day to suddenly none) If abdominal distention is accompanying constipation, it could be an emergency.

... If an infant's diapers remain dry for significantly longer periods of time and are associated with poor milk or water intake.

... If an infant has a temperature of 101° and is not acting normal; if temperature of 100-101° persists for several days; if temperature is 102°+.

... If a baby has a convulsion with or without fever. (Febrile convulsions are due to a high temperature and may occur during first few months. If convulsions are infrequent or non-reoccurring they will not cause central nervous damage but are quite frightening.) Seizures may be symptomatic of another disease or disorder. Therefore a doctor should be consulted immediately to determine cause and course of treatment.

... If a baby looses consciousness.

... If the infant develops a rash, diarrhea, hyperactivity, unusual behavior changes, change in normal sleeping patterns, convulsion after receiving an inoculation or medication.

TODDLER AND OLDER CHILD

... If the child complains of dizziness, earache, severe stomach cramps, persistent headache or stiff neck.

... If the child appears pale or bluish.

... If the child's breathing is more rapid than normal and/or is gasping for breath.

... If the child develops a persistent cough - whether dry and hacking or congested and hoarse.

... If the child is chilling.

... If the child exhibits a persistent fever of 101° or 102° for several days; if fever is 103°+.

... If appetite is markedly less than normal.

... If the child has diarrhea.

... If the child is vomiting.

... If the child is normally very active and prefers to lie down or just sit.

In a child any one of these signs or symptoms could be symptomatic of severe or mild illness. Only a doctor should determine the severity of an illness. A telephone call to the child's physician will give him enough information to determine urgency of illness. He then can advise care and treatment.

A physician's role includes training parents as medical paraprofessionals for their child. He guides parents into becoming experts at recognizing signs and symptoms of illness. This only occurs through trial and error. The best errors are over-emphasized symptoms. Under-emphasis can lead to misdiagnosis and treatment too late to prevent a resulting handicap.

DIARRHEA/DEHYDRATION

This condition is symptomatic of an underlying disease. It is a unique symptom, because it has the potential of causing severe central nervous damage that could result in mental retardation.

Diarrhea is generally a result of a gastroenteritis infection. It can also result from food intolerance or drug reactions. Whatever the cause diarrhea is a serious condition. It can be fatal in infants if not treated. Diarrhea produces a loss of essential salts and water. Both of these are essential elements in (body and cellular) metabolic functions. When these elements are in an imbalance, metabolic processes conversely become imbalanced. Prolonged dehydration causes cellular shrinkage and tissue shrinkage. This is particularly devastating at the cortical level. The shrinkage causes further complications as brain tears and intracranial hemorrhages. The blood vessels become blocked causing brain cells to degenerate further. The results can be devastating.

Symptoms of dehydration are:

1. diarrhea
2. lethargy
3. paleness
4. sunken anterior fontanel
5. eyes appear dark and sunken
6. minimal fluid intake
7. urination-significantly less frequent
8. convulsions.

Severe dehydration can be prevented by early detection and supplementing the child's body fluids. This should not be done without medical supervision! Severe cases of dehydration need hospitalization.

Prevention

Call a doctor immediately upon observing these symptoms. It could preserve the mental well-being of a child.

CHECKUPS

With the advent of medical technology many infections and nutritional disorders have almost disappeared in the U.S. Therefore emphasis is now placed on preventive medicine, early detection and prevention of disease. Preventive care is important to assure optimal physical, intellectual and emotional growth and development.

SAMPLE SCHEDULE OF
REGULAR CHECKUPS

1st year

6 weeks
3 months
6 months
9 months

2nd year

12 months
18 months

24 months

twice yearly

A physician uses these checkups to: give routine immunizations; evaluate growth and development; do screening tests such as vision, blood pressure, urine cultures, TB skin tests; and to answer parental questions about bringing up infants and children. These aspects are all important in the task of preventing devastating diseases and treating problems before they are too advanced to be manageable.

TOXIC REACTIONS

Parents must take responsibility in the administration and overseeing of medication whether preventive or treatment oriented. Drugs if inappropriately administered can cause several irreversible side effects to the CNS. Children are not little adults from a disease standpoint and therefore medication prescribed for an adult or a fraction of an over-the-counter drug is not treating a child safely or adequately.

What might be a safe dosage for an adult could prove toxic or even fatal to a child.

Some drugs even given in appropriate dosage have toxic effects and all drugs have side effects. This is the reason drugs require a prescription. Some parents who are alert to new developments in drug therapy appear ignorant of this fact when theybesiege doctors with appeals for the latest discovery. Antibiotics can cause allergic reactions or an individual may become hypersensitive or resistant over prolonged use. Antibiotics used too early in a course of a disease can hide symptoms of meningitis and/or encephalitis, increasing the risks of brain damage or mental retardation from these diseases. Doctors should make judgments determining medication - not parents.

Prevention of Toxic Drug Reactions that Have Potential of Causing Brain Damage or Mental Retardation.

1. Parents should report and discuss with their physician any side effects or adverse reactions to a vaccine or serum.
2. Parents should not administer any drug unless directed by a physician. This includes over-the-counter drugs such as aspirin and cough syrups and prescription drugs.
3. If over-the-counter drugs must be used, select products specifically formulated for a child. If in doubt consult a pharmacist.
4. Follow instructions on prescription drugs explicitly. If it says use only asnecessary, use it only as necessary!!
5. Do not stop treatment as soon as the child looks well unless a physician advises. Medication stopped too early may allow infection or disease to reoccur.
6. Discard medications not given.
7. Follow directions for proper administration - amount, frequency and duration.
8. Do not use drugs beyond the indicated dates.
9. Keep drugs in appropriate climate. Some drugs require refrigeration in order to maintain effectiveness and/or avoid spoilage.

SELECTION OF HEALTH PROFESSIONALS

Selection of a physician is paramount in prevention. Doctor/parent relationships are important for successful communication about care and treatment of illness and emergency situations. The doctor must be able to rely on parent information; and parents must be able to trust the doctor's judgment and rely on his availability in crisis situations. Good communication could mean the difference between detection - appropriate care and treatment, and that of death or mental retardation.

In selecting a physician parents must:

1. Develop a set of criteria for what they are looking for in a doctor.

An Example

one that makes all decisions	vs.	one that encourages parents to ask questions and participates in decision making
pediatrician	vs.	family physician
group practice	vs.	private
one that listens and discusses	vs.	one that lectures

2. Obtain a referral from someone they know and trust. This can afford information as: physician's interest in patients; his availability in emergencies or illnesses; time spent with patients; patient's satisfaction of service.

Referral Sources Are

friend
family
neighbor
other physician
local medical society
local hospital
social service agencies as visiting nurse
directory of medical specialists (found in medical or science section of library)

3. Evaluate the physician's professional and personal competence.
   - the doctor is on staff of an accredited hospital.
   - the doctor is on staff of teaching hospital.

If an infant or child requires hospitalization, the parents must be aware of physician's privileges at a good hospital. Therefore avoiding situation requiring their physician to make a referral to another physician.

- what kind of professional training the physician has had in pediatrics?
- location of office in relation to home of child.
- is the doctor or an associate available for emergencies?
- is the doctor or an associate always reachable by phone?

  (a physician is of little value if he or an associate cannot be reached in an emergency)
- fee - schedule???
- does the physician instill confidence; is he/she comfortable to talk to; does he/she turn you off; does she/he appear to be doing you a favor in talking with you?
- does the physician have F.A.A.P. behind his or her name? (these initials stand for Fellow of American Academy of Pediatrics - they symbolize a number of extra years of specialized training, additional residency and passing the exam of the American Board of Pediatrics).

If your first choice turns out to be a wrong one KEEP LOOKING!!! Parents have the right in selecting a physician. They also have a right to terminate a relationship with one M.D. to seek a more compatible relationship with another physician.

A physician should be selected before a child becomes sick, and function as primary health supervisor. He should act as coordinator when specialists or consultants are required. Continuity in care is vital in preventive medicine.

Pretest

Cognitive

1. The central nervous system contains
   ____ a. the heart and circulatory system.
   ____ b. the brain and spinal cord.
   ____ c. all the endocrine glands.

2. Damage to the __________ can cause brain damage or mental retardation that is irreversible.
   ____ a. neuron cells of the brain
   ____ b. muscular tissue
   ____ c. organs and glands

3. __________ can cause damage to the tissues of the brain and result in mental retardation.
   ____ a. Infections
   ____ b. Metabolic imbalances
   ____ c. Both of the above

4. Oxidation, digestion, secretion, excretion and assimilation are __________ processes that must be kept in balance to insure optimum mental functioning.
   ____ a. disease
   ____ b. preventive
   ____ c. metabolic

5. Serious childhood illnesses that can cause an infection or secondary infection resulting in mental retardation are
   ____ a. measles.
   ____ b. mumps.
   ____ c. whooping cough.
   ____ d. all of the above.

6. __________ can prevent some childhood illnesses.
   ____ a. Medicine or drugs
   ____ b. Immunizations
   ____ c. Neither of the above

7. Vaccines or immunizations, medicines and drugs can result in physical reactions which can potentially cause mental retardation.
   ____ a. true
   ____ b. false

8. __________ is an infectious disease of the brain or its protective covering and has potential of causing mental retardation.
   ____ a. Encephalitis
   ____ b. Meningitis
   ____ c. Both of the above

234

9. Mosquitos can transmit a virus that can cause mental retardation.
   ____ a. true
   ____ b. false

10. ________ are produced by the immune system and are important in fighting off an infection.
    ____ a. Blood
    ____ b. Antibodies
    ____ c. Bacteria

11. A bulging soft spot, irritability, fever and rapid breathing are signs of ________ in an infant or child.
    ____ a. overexertion
    ____ b. exhaustion
    ____ c. illness.

12. Diarrhea in a child or infant has the potential of resulting in mental retardation.
    ____ a. true
    ____ b. false

13. __________ results in the most responsible selection of a physician.
    ____ a. Looking in the yellow pages
    ____ b. Getting a referral from local medical society or hospital
    ____ c. Getting a referral from another physician or a friend that you trust and respect

Key: 1. b, 2. a, 3. c, 4. c, 5. d, 6. b, 7. a, 8. c, 9. a, 10. b, 11. c, 12. a, 13. c.

235

Affective Barometer

Circle the word or words which best represent the intensity of your feelings.

1. I feel that damage to the central nervous system can cause mental retardation

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

2. I feel that childhood illnesses and metabolic disorders have the potential of resulting in mental retardation.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

3. I feel that a responsible, congenial and trustful relationship is needed in the selection and interaction with the physician of my child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

4. I feel preventative health care is important to the mental well-being of a growing child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

5. I feel that during the growing years of my future children I will want to:

   a. find out what are "normal" vaccine or drug reactions and act immediately when an abnormal reaction occurs in my child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

   b. ensure that my child completes his immunization schedule.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

   c. notify my doctor when my infant has been exposed to a serious childhood illness.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

   d. control the exposure of my infant or child to mosquitos.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

   e. provide the stage for my child to get adequate nutrition and rest.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

   f. notify my doctor when my child exhibits signs or symptoms of illness.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

   g. take my child for regular medical checkups.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

   h. select a physician for my child in a responsible and knowledgeable manner.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

Mini Lecture or Presentation

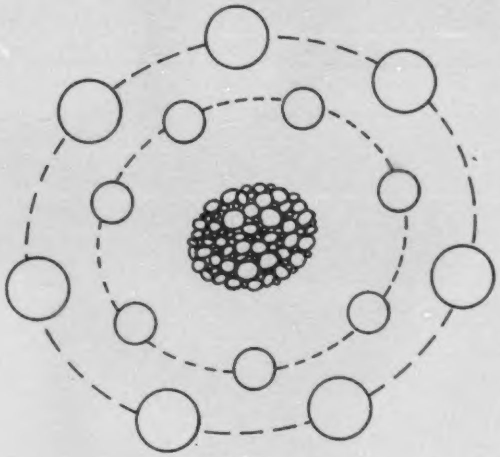
"Your Role as a Doctor"

One of the roles you will play as a parent is the "doctor". This role is imperative for the maintenance of your child's optimum health. A healthy child leads to:

... the development of intellectual potentials to their optimum level.

... the development of emotional potentials.

... the development of physical potentials.



The formation represents the brain cells in the center, all clustered and gathered together to form a network of messengers to the rest of the body. The cells and its network are the essential components of the intellectual, emotional and physical potentials. To ensure that the brain cells grow and a child's potentials develop, he has available to him two defensive mechanisms. The "body defenders" form the first circle of defense. These are the systems and processes the child inherits. They function to protect and nourish the brain cells. The outside circle represents the medical defenses used by a parent to prevent any damage to their child's mental, physical and intellectual well-being.

Let's do some role playing of how the brain develops and relies on the body defenders and the medical defenses. OK! Let's push all the desks and chairs against the wall. Everyone will have a role to play. Here is your role card. (Prepare role cards from dittos 29 through 43. You will also need dittos 44 through 51.) The players in our drama have a number. Each player will act out his or her part in numerical order. This will be on cue from the instructor. Also on the card is the location of the play. This tells you where to move to before you act out your part. Some of the players will act as cells. Some players will have two cell role cards, A and B. These cell players will act out the B cards when the formation is finished. Feel free to add actions, expressions and dramatization as long as we stay just serious enough to get the point or meaning. OK!! Let's get started.

Instructor: Players 1-11 Form a small circular unit.

A Player #1	Location of the Play: Sitting in the middle of the floor

Cell #1 - We are the cells of the brain and spinal cord. Our cell name is neuron. We are like all other cells of the body. We are made of nonliving substances as oxygen, hydrogen, nitrogen and carbon. We have the capability of growing, reproducing, metabolism, mobility and irritability. We therefore are alive.

A Player #2	Location of the Play: Sitting in the middle of the floor

Cell #2 - Like all other cells we have a body and nucleus. They both have living substances contained in each. Since each has a different process, they are called cytoplasm in our body and nucleoplasm in our nucleus. In our body the cytoplasm has many organized structures that involve enzyme reactions and metabolic activities. These metabolic activities require nutritive chemicals as carbon, hydrogen, sodium, albumin, iron, and calcium which come from foods. When we need more foods or have waste products our outer boundary moves them from inside out or outside in.

A Player #3	Location of the Play: Sitting in the middle of the floor

Cell #3 - Our nucleus is generally located in our center. It contains 46 chromosomes. Inside each of our chromosomes is a combination of chemicals called DNA. The chemicals of DNA form a ladder-like structure of tens of millions of rungs. Our DNA rungs are in a predetermined pattern. A complex of rungs makes a gene. There is a gene for almost every type of body activity.

A Player #4	Location of the Play: Sitting in the middle of the floor

Cell #4 - So far all the things my brother neurons have told you about us apply to all other body cells. We have something very different than other cells. It makes us special. We have 2 processes that extend from our bodies. These processes carry messages from one neuron to another. The dendrites are our short tree-like branches and they carry the impulse - our message - toward our cell body and nucleus. The other process is our axon and it carries impulses away from our cell bodies. Some of us, like me, have great big long axons - up to 3 feet long. Others of us have dinky short axons.

A Player #5	Location of the Play: Sitting in the middle of the floor

Cell #5 - When our axon is just about to end, it branches into many fine fibers. They are called terminal filaments and let us make contact with tissues in the body. As a motor neuron I send impulses down my axon and through these filaments to an eye muscle. I and my neighbors can really make it twitch!

A Player #6	Location of the Play: Sitting in the middle of the floor

Cell #6 - We send impulses or messages to each other by starting the impulses at the axon of one of us. It then jumps to the dendrite of another neighboring neuron. The point where our messages pass from one neuron to another is called our synaptic junction. Remember those terminal filaments neuron #5 talked about. Well, synapes is where they come in close contact to another neuron.

A Player #7	Location of the Play: Sitting in the middle of the floor
Cell #7 - Some of us have a protective myelin sheath that covers our axon. Our cousin neurons, that live farther down the body have neurilemma protecting and nourishing their myelin. They sure are lucky to have it too! Because if their axon dies, the neurilemma helps them regenerate another. Boy, that sure is not the way it is up here. When we get hurt we get hurt.	

A Player #8	Location of the Play: Sitting in the middle of the floor
Cell #8 - Boy is that ever true. Just the other day a whole group of cells got all dented and banged up when a basketball hit our head. Their axon really got the brunt of it and just laid there and died. I don't know what that neuron will do, in fact all his neighbors are having to find alternate routes for their messages.	

A Player #9	Location of the Play: Sitting in the middle of the floor
Cell #9 - Enough gossip!! Where were we? Oh, yes! When our axons are all following the same route, we tend to bunch together and form nerves. The spinal cord lets us all collect there for channeling into 31 pairs of spinal nerves. These nerves go out to the periphery of our body.	

A Player #10	Location of the Play: Sitting in the middle of the floor
Cell #10 - The growth of the nervous tissue depends on us and other nerve cells that are not quite as special. (Actually all they do is give us nutritive chemicals.) We grow as the body metabolizes more food into protoplasm than we actually are able to break down. When we have grown too large to handle any more protoplasm, we undergo division. This results in more of us that are smaller and can grow and in turn divide and grow. As each one of us is doing this, the tissue we make as a group also grows.	

A Player #11	Location of the Play: Sitting in the middle of the floor
Cell #11 - I might add that generally we neurons were all here when our body was born and none of us have done much division since then. But the glial tissue (the other nerve cells) have of course. We won't reach our optimum growth until about age 2. There is still a lot to complete in the myelination area. That's a long process! Without it we are much more vulnerable to assault. We may have some real battles on our hands in the next few years and need all the protection we can get.	

Instructor: Player 12

Player #12	Location of Play: Sitting in a large circle around circle #1-the cells
Hi, I'm the spinal cord. I am loosely suspended in the spinal canal. The canal is formed by contiguous parts of the vertebra. I am continuous with the base of the brain and taper to smaller strands below the second lumbar vertebra.	

Instructor: Player 13

Player #13	Location of Play: Sitting in a large circle around circle #1-the cells
Nourisher and Procector - That's me! I'm the membranous covering of the spinal cord and brain. Collectively I'm called the meninges. I'm composed of three layers - the dura matter, arachnoid membrane and pia mater. The subarachnoid space contains spinal fluid that protects the cord and brain from mechanical injuries.	

Instructor: Player 14

Player #14	Location of Play: Sitting in a large circle around circle #1-the cells
Hi! We're the quintuplet metabolic functions. We are the processes that maintain life in and out of the cells. Remember when one of the cells talked about their metabolic process? Well, every cell has its own specific metabolic functions and they interact with the functions of the organs, tissues and glands. That's what makes this little girl's body work. My function is oxidation. That is combining elements with oxygen for cells to use as nutrition.	

Instructor: Player 15

Player #15	Location of Play: Sitting in a large circle around circle #1-the cells
Digestion is the name of my game. I convert ingested foods into simpler compounds for assimilation.	

Instructor: Player 16

Player #16	Location of Play: Sitting in a large circle around circle #1-the cells
After digestion breaks foods into simpler compounds, I'm the process that body tissues use to take in the nutriment so that it becomes part of them. I'm assimilation!!	

Instructor: Player 17

Player #17	Location of Play: Sitting in a large circle around circle #1-the cells
A secretion is a substance formed by glandular cells. That's my process. This includes the endocrine glands and their hormone secretions.	

Instructor: Player 18

Player #18	Location of Play: Sitting in a large circle around circle #1-the cells
EXCRETION! - I'm the garbage man - always get the excess or the chemicals no one else wants. I remove waste products from tissues and cells. We are all important for normal neural cell functioning. If one of us is out of balance, it can have a terrible effect on the neuron cells. They are so vulnerable!	

Instructor: Player 19

<table>
<tr><td>Player #19</td><td>Location of Play: Sitting in a large circle around circle #1-the cells</td></tr>
<tr><td colspan="2">I am a hormone, and I am, so to speak, a metabolic agent. That is, I regulate the enzymes that act as catalysts of metabolic processes. I am produced by endocrine glands. Each of the glands produces a different hormone that reacts on a different enzyme.</td></tr>
</table>

Instructor: Player 20

<table>
<tr><td>Player #20</td><td>Location of Play: Sitting in a large circle around circle #1-the cells</td></tr>
<tr><td colspan="2">You've already heard about me. I am the enzymes. I act as a catalyst for chemical reactions. That means I speed things up a bit. Without me the metabolic processes would go haywire.</td></tr>
</table>

Instructor: Player 21

<table>
<tr><td>Player #21</td><td>Location of Play: Sitting in a large circle around circle #1-the cells</td></tr>
<tr><td colspan="2">We are the defenders of the body. Our job is to set up lines of battle with germs, the invaders. I am the first line of defense. I am the protective coverings of the body. My protective coverings extend into cavities that have an opening to the outside as the mouth, lungs and nose. On the inside they form a mucous lining of these cavities. My outermost area of protection is the skin.</td></tr>
</table>

Instructor: Player 22

<table>
<tr><td>Player #22</td><td>Location of Play: Sitting in a large circle around circle #1-the cells</td></tr>
<tr><td colspan="2">I'm the second line of defense. My defense involves several tactics. When cells are injured they emit a chemical that allow lymph and blood to flow to the injured area causing inflammation. This chemical also signals white blood cells called phagocytes to enter the area and seal it off from healthy tissue. These phagocytes then consume the germs and destroyed cells. In a large invasion you can see redness and an accumulation of pus. That's my defensive line working.</td></tr>
</table>

Instructor: Player 23

<table>
<tr><td>Player #23</td><td>Location of Play: Sitting in a large circle around circle #1-the cells</td></tr>
<tr><td colspan="2">The third line of defense is located in the lymph nodes. I have strategically placed phagocytes there to engulf any germs that got past the first, second and third defense teams. I hope to catch them before they enter the bloodstream.</td></tr>
</table>

Instructor: Player 24

<table>
<tr><td>Player #24</td><td>Location of Play: Sitting in a large circle around circle #1-the cells</td></tr>
<tr><td colspan="2">I'm the fourth defender. I have placed my armies of phagocytes in the lining of the sinuses of the spleen. Therefore, if the germs did reach the bloodstream they must pass me before entering the general circulation.</td></tr>
</table>

Instructor: Player 25

Player #25	Location of Play: Sitting in a large circle around circle #1-the cells

I am the mighty immune system. My defense tactics are often what wins the war. I have the capability of producing a specific antibody for each infectious agent that enters the body. I call the invaders antigens, and often attack other foreign substances besides infection as food, drugs, chemicals, and air pollen. Each antigen that enters the body has its own unique chemical makeup. To render each and every antigen inactive, I must make a separate antibody for each antigen. Once I have manufactured an antigen, I don't forget it. At a moment's notice I can recall the antibodies I used for a previous antigen. In fact my system even works faster the second time around. This ability to fight off a second invasion quickly and without disease is called active immunity.

Instructor: Player 26 (Pass out ditto 44 & 45 when player finishes action.)

Player #26	Location of Play: Sitting in the outermost circle

I am immunizations. I have the ability of preventing 7 of the most threatening childhood diseases. Three of these - pertussis (whooping cough), mumps, and measles, have the potential of affecting the brain and/or protective coverings of the brain and spinal cord. These infectious diseases are called encephalitis and meningitis. They have the potential of destroying the neuron cells and pathways resulting in brain damage or mental retardation Immunizations take little time and little money, yet 20 million children in the U.S. under 15 have not been immunized against one or more of these devastating childhood diseases.

Instructor: Player 27

Player #27	Location of Play: Sitting in the outermost circle

Immunoglobulin or antiserum are my names. I offer only temporary immunity to some infectious diseases. My inoculation is a serum containing antibodies from an animal or human. Unlike immunizations I do not have antigens of the disease in my serum, therefore I cannot stimulate the child's antibody production. My real purpose is to offer protection to weak children or infants who have not been immunized and would have trouble fighting off the disease. I am only used after a child has been exposed. I don't have an antiserum for every disease and for some I have not been proven effective. But PARENTS SHOULD REMEMBER ME AND DISCUSS MY USE WITH THEIR PHYSICIAN IF THEIR INFANT BECOMES EXPOSED TO ONE OF THESE CHILDHOOD ILLNESSES BEFORE IMMUNIZATION IS COMPLETED.

Instructor: Player 28 (Pass out ditto 46 when player finishes acting.)

Player #28	Location of Play: Sitting in the outermost circle

I am a preventive technique against arbovirus. These are viruses communicated by mosquitoes that have bitten an infected bird or animal. The virus they carry has the ability to cause encephalitis. This disease can cause death to neuron cells. If enough of the cells are damaged or die, brain damage or mental retardation will result. There are no specific treatments or vaccines-prevention lies in effective control of mosquitoes.

Instructor: Player 29

Player #29	Location of Play: Sitting in the outermost circle

I represent general health and nutrition of the body. These are important factors in preventing childhood disease. Poor nutrition, fatigue and exposure play a large role in susceptibility to infection. AS A PARENT YOU MUST SET THE STAGE FOR PROPER NUTRITION AND ADEQUATE AMOUNTS OF REST. Therefore minimizing the chances of your child contracting a disease that has the potential to effect the mental, physical and emotional growth of your children.

Instructor: Player 30 (Pass out dittos 47 & 48 when player finishes acting.)

Player #30	Location of Play: Sitting in the outermost circle

Signs and symptoms of illness are my bag. Prevention of mental retardation resulting from encephalitis, meningitis, metabolic disorders, endocrine imbalances, dehydration and toxic drugs or vaccines lies in parents recognizing the signs-symptoms of illness. Early detection leads to early treatment and less chance of complications leading to brain damage and/or mental retardation.

Instructor: Player 31

Player #31	Location of Play: Sitting in the outermost circle

I advocate parents taking the role of overseer of medications whether preventive or treatment orientated. Drugs and vaccines can cause severe, irreversible side effects to the brain. Instead of the child's body accepting and utilizing a drug or vaccine to its advantage, it reacts to it as a toxic antigen. The immune system produces antibodies just as if the child was fighting an infection. The chemicals from the antibody-antigen interaction causes the child to react physically with a number of possible reactions: seizure; fainting; hives; fever; coughing; wheezing; shock. If the antigen/antibody chemical is toxic to neurons, brain damage could result.

Instructor: Player 32

Player #32	Location of Play: Sitting in the outermost circle

I'm for regular checkups as a part of preventive medicine. A physician uses these checkups to: give routine immunizations; evaluate growth and development; do screening tests as vision, blood pressure, urine culture, TB skin test, and to answer parent's questions about raising their child. These aspects are all important for detecting and preventing metabolic imbalances, endocrine imbalances, infectious disease, malnutrition and other serious health problems that could lead to brain damage and mental retardation. I am important for preventing diseases and complications that can result in mental retardation. Regular checkups should be routine.

Instructor: Player 33 (Pass out dittos 49 & 50 when player finishes acting.)

Player #33	Location of Play: Sitting in the outermost circle

Hello! I'm the child's doctor. My job of prevention and early detection has been made easier by these parents. They realize the importance of responsible selection of health supervision in prevention of mental retardation. They realize that effective health supervision depends on parent-doctor compatibility and communication. A communicating relationship is needed for care and treatment of illness and emergency situations. The M.D. must be able to rely on parent information; and parents must be able to trust the doctor's judgment and rely on his availability. Good communication could mean the difference between detection and appropriate care and treatment or death, brain damage, or mental retardation. Here are my guidelines for a parent in selecting a doctor. This is an important factor in preventing mental retardation.

Instructor: Cell #1

B Cell #1

I am dying. The little girl's body I live in is not functioning well. She was born with a genetic disorder called PKU. They detected it in the hospital and the doctors put her on a diet. She needs to be on this special diet and have tyrosine supplements every day. If only she could do that I would feel so much better and be able to do my job. But her parents haven't followed the diet so I suffer. Her mom says the diet is too much trouble.

Instructor: Cell #3

B Cell #3

Boy do I ever hurt. Those chemicals are killing me. Genny's mom gave her some medicine that the doctor prescribed for her sister. Not only is the medicine wrong for Genny, but her mother gave her a double dose - "just to make sure she got those nasty germs!!" Genny is really sick and I don't feel much better. I'LL NEVER BE MY OLD SELF AGAIN! OW! If only Genny's mother would have called the doctor!! . . . . A DOUBLE DOSE - DUMB!!!

Instructor: Cell #5

B Cell #5

Genny's got a hormone deficiency called hypothyroidism. But no one seems to notice but me. I can't help but notice, it's suffocating me. I need that hormone called thyroxine to speed up the oxidative system. So I can get some more air. It really is stuffy up here without it. If someone doesn't notice how listless, weak and inactive she is I'll never have enough energy to grow. If Genny could talk she would tell them that she even gets dizzy and nauseous.

Instructor: Cell #7 (Pass out ditto 51 when player finishes acting.)

B Cell #7

Genny's got diarrhea. Her parents think all babies get it. They aren't worried, but I am. When Genny gets diarrhea she looses salts and water which are important to my metabolic processes. If I don't get just enough of these chemicals my whole system is thrown out of whack. I'll become dehydrated which will cause me to shrink. If many of us neurons shrink much more our brain tissues will tear or the blood vessels around us will hemorrhage. Then we are really doomed.

Instructor: Cell #8

B Cell #8

I guess her parents just don't realize that dehydration can cause lots and lots of us neurons to die. In fact, what's worse, Genny could die too! If they would only look at Genny they could tell she is sick. She has: diarrhea; is pale and lethargic; her eyes are dark and sunken; her lips dry; her soft spot is a dead giveaway-its sunken. Before long she will have one symptom I know they won't miss-a convulsion. All this could be corrected if they would call the doctor. He could determine how to replenish the fluids she has lost and not replaced.

Instructor: WOW! You guys did a terrific job of acting, etc. Do you get the picture? What does the formation represent? Right! You have two outer rings and a center circle. The outer circles are both related to the development of the brain cells and the prevention of malfunction or disease. The middle ring representing body defenses and the outer ring representing the nine medical defenses the parents must perform in their role as a doctor in the prevention of mental retardation in the growing child.

(During the next class session take dittos handed out during the drama and discuss them with the class as a group.)

☐ Classroom Experience Options

General

1. Develop a booklet for this chapter containing pamphlets, handouts (dittos) and Action Checklist. Make a ditto of the chapter cover for use at beginning of the notebook.

2. Use pamphlets for discussion, clarification or emphasis:

   a. Immunization
      1. A Parent's Guide to Childhood Immunization 522G
         Available from: ⬡ 6
      2. Parent's Guide to Childhood Immunization
         DHEW Publication # (OS)77050058
         Available from: ✪ 1
      3. Protect Every Child 14
         Available from: ⬡

   b. Drugs & Medicine
      1. Food and Drug Interactions 595G
         Available from: ⬡ 6
      2. Mixing Medicines? Have a Care 597G
         Available from: ⬡ 6

   c. Childhood Illnesses
      1. Rubella
         Available from: ⬡ 7
      2. Tetanus DHEW Pub. #(NIH) 76-602
         Available from: ✪ 1
      3. Flu 037G
         Available from: ⬡ 6
      4. Encephalitis
         Available from: ⬡ 15
      5. Tuberculosis
         Public Health Service Pub. #30
         Available from: ✪ 3 Cost 10¢ ea. $6.50/100
      6. Mumps HEW Pub. #(CDC) 76-8246
         Available from: ✪ 7

d. Signs & Symptoms of Illness

1. First-Time Parents
   Available from: ⬡ 17
2. Baby Care Basics
   Available from: ⬡ 17
3. Infant Care
   DHEW Pub. #(OCD)73-15
   Available from: ✪ 1
4. Maternal and Child Health Service: Promoting the Health of Mothers and Children
   Available from: ✪ 3

3. Show a film to introduce an area of study, emphasize a concept or to affect the feelings of the students.

a. Title: A Gift, An Obligation
Time:
Content: A film on the prevention of communicable diseases.
Available from: ⊛ 16

b. Title: Health-You and Your Helpers A-1504
Time: 11 min. color film
Content: Members who contribute to a healthy community are visualized on the job: the doctor; dentist; nurse; pharmacist; health inspectors in food processing, restaurants and produce markets; the hospital and the pharmacy. Stresses preventive measures exercised for good health: proper food, rest, exercise and cleanliness.
Available from: ⊛ 16

Regular Checkups

c. Title: Infant Appraisal P-8 1973
Time: 27 min. color film
Content: Illustrates normal growth and development and demonstrates a technique for early detection of physical and neurological anomalies, also demonstrates a procedure for detailed appraisal of an infant. Emphasizes the need for early identification of children with handicapping conditions in order to increase the likelihood of early intervention with children who have handicaps.
To be used in conjunction with the accompanying manual "A Developmental Approach to Casefinding" by Una Haynes.
Available from: ⊛ 16

d. Title: Neurological Examination of the One-Year-Old P-49
Time: 30 min. color film
Content: Establishes standards for examination of infants at the age of one year. Shows normal and abnormal responses to tests.
Available from: ⊛ 16

e. Title: Neurological Examination of the New-Born P-48
Time: 30 min. color film
Content: Establishes standards in neonatal examination. Shows normal and abnormal responses to a series of tests.
Available from: ⊛ 16

Metabolic Imbalances

f. Title: Somatic Endocrine Types of Neuropsychiatric Disorders
Time: 19 min. color film
Content: Different types of endocrinological malformation are shown, such as albinism, microcephalus, hydrocephalus, cretinism and mongolism. Silent.
Available from: ⊛ 28

Childhood Illnesses

g. Title: Illness
Time: filmstrips
Content: Series of filmstrips and discussion guide.
Available from: ⊛ 30

h. Title: Decision
Time: 18 min. color film
Content: World-renowned immunologist, Dr. Robert Good, leads a major scientific breakthrough in the correction of serious birth defects...a personal drama of saving a boy's life through a bone marrow transplant.
Available from: ⊛ 15

i. Title: Helping Hands for Julie A-601
Time: 30 min. black & white film
Content: Dramatizes the role of a hospital medical team in a child's fight for life against meningitis. Her family physician, a surgeon, a resident and the entire hospital medical team, including the nurse, pharmacist, dietitian, and physical therapist, bring the child back to health.
Available from: ⊛ 16

j. Title: The Elusive Enemy A-822
Time: 28 min. color film
Content: This is an unusual and dramatic documentary film that actually projects the true story of four youngsters afflicted by TB.
Available from: ⊛ 16

Medication

k. Title: Taking A Look At What We're Taking
Time: 75 slides, 35 mm
Script or Cassette
Content: Over-the-counter drugs, historical review and current products.
Available from: ⊛ 40

Immunization

l. Title: Immunization A-144
Time: 10 min. black & white film
Content: Centering around three great threats to child health, the film fully describes the modern effective techniques of vaccination and immunization.
Available from: ⊛ 16

4. Discuss in small groups:
   a. What makes a person go back to one doctor versus another.
   b. What is important to them in a doctor.
   c. Develop criteria for selection of a doctor.
5. Have a debate with two students arguing child care by a pediatrician vs. a family physician.
6. Role play: Mother and father calling physician in a crisis illness. Symptom taking should be emphasized.
7. Look at a human cell under the microscope. Discuss its parts.
8. Speakers:
   a. Pediatrician or physician talking on the importance of regular checkups.
   b. Family practitioners or pediatrician's nurse or physician's assistant to talk on importance of parents noting signs and symptoms of illness.
   c. Pharmacist talking on importance of proper drug administration.
   d. A mother/father and how they use their physician and his importance to them.
9. Have students make a list of items useful for treating an illness. (Include medications with understanding that administration must be the doctor's decision.)
10. Make a list of things that their community might do to improve the control of mosquitos.
11. Write to drug companies for a list of drugs that they have on market for children. Discuss the appropriateness of using over-the-counter drugs and when to use them.

Outside Classroom Experience Options

1. Visit a pediatrician's office and watch the examination of an infant or growing child with a discussion of its importance or implications by the pediatrician.
2. Visit a pediatric wing or floor of a hospital to experience causes of childhood accident or illness.
3. Tour the well baby clinic in the community.
4. Call or visit the local medical society, local hospital and visiting nurse's association to get a list of local physicians and pediatricians.
5. Have a student(s) get list of physicians in area from the Directory of Medical Specialists found in the medical or science section of library.
6. Have students go to medical libraries, doctor's offices, local board of health, insurance companies to collect pamphlets. Then make a booklet or collage from them.
7. Go to drugstore and list the mosquito repellants on the market. Relate their effectiveness and ease in using with children.
8. Go to drugstore and list the number of drugs available for use with children. Discuss the pros and cons of over-the-counter drugs and the appropriate time to use them.
9. Call local health board to get information on mosquito control in their area.
10. Call local board of health to get immunization statistic for community.
11. Call local board of health to get local statistics on incidence of the seven common childhood illnesses.

Action Checklist

Pass out Action Checklist for this unit of study to each student prepared from dittos 52 through 53.

As a parent I:

____ Will make sure my child receives complete immunization for Diptheria, Tetanus, Pertussis (Whooping Cough), Polio, Measles, Rubella and Mumps.

____ Will have my child tested for TB during infancy and childhood.

____ Will be on guard for abnormal reactions to vaccines and drugs and report them immediately to my doctor.

____ Will not administer any drugs or medication to my child unless directed so by the physician.

____ Will not administer over-the-counter drugs to my child unless directed to do so by a doctor.

____ Will follow the instructions on prescription drugs explicitly.

____ Will adhere strictly to any diet or dietary supplementation that my child must follow.

____ Will stop medications on advise of the physician, not when I think my child looks well.

____ Will not use drugs beyond the indicated dates.

____ Will notify the doctor when my infant has been exposed to a serious childhood illness.

____ Will control the exposure of my child or infant to mosquitos.

____ Will see that my child receives nutritious meals and snacks.

____ Will see that my child gets sleep or rest adequate for his age.

____ Will take my child for regular checkups. Three to four times during the first year and two times each year thereafter.

____ Will notify the doctor when my infant or child exhibits signs or symptoms of illness.

____ Will recognize the following as signs of illness.

paleness
yellow tint to skin
rapid breathing
gasping for breath
persistent cough
bulging or sunken soft spot
irritability
poor appetite
complaints of dizziness or headache
change in sleeping pattern
diarrhea
vomiting
generalized rash
constipation
temperature
convulsion
loss of consciousness

____ Will select a physician in a responsible and knowledgeable manner.

____ Will terminate an undesirable relationship with a physician and find another more compatible one.

____ Will maintain all medical care of my child under the supervision of one doctor.

⇨ **Post Test**

Use the same test as for the pretest. Have the students take it in class or as homework. Let them compare their gains.

II. The Doctor

Ditto 29

Situation Cards

Instructor: Players 1-11 Form a small circular unit.

A Player #1	Location of the Play: Sitting in the middle of the floor
Cell #1 - We are the cells of the brain and spinal cord. Our cell name is neuron. We are like all other cells of the body. We are made of nonliving substances as oxygen, hydrogen, nitrogen and carbon. We have the capability of growing, reproducing, metabolism, mobility and irritability. We therefore are alive.	

A Player #2	Location of the Play: Sitting in the middle of the floor
Cell #2 - Like all other cells we have a body and nucleus. They both have living substances contained in each. Since each has a different process, they are called cytoplasm in our body and nucleoplasm in our nucleus. In our body the cytoplasm has many organized structures that involve enzyme reactions and metabolic activities. These metabolic activities require nutritive chemicals as carbon, hydrogen, sodium, albumin, iron, and calcium which come from foods. When we need more foods or have waste products our outer boundary moves them from inside out or outside in.	

A Player #3	Location of the Play: Sitting in the middle of the floor
Cell #3 - Our nucleus is generally located in our center. It contains 46 chromosomes. Inside each of our chromosomes is a combination of chemicals called DNA. The chemicals of DNA form a ladder-like structure of tens of millions of rungs. Our DNA rungs are in a predetermined pattern. A complex of rungs makes a gene. There is a gene for almost every type of body activity.	

II. The Doctor

Ditto 30 Situation Cards (Continued)

<table>
<tr><td>A Player #4</td><td>Location of the Play: Sitting in the middle of the floor</td></tr>
<tr><td colspan="2">Cell #4 - So far all the things my brother neurons have told you about us apply to all other body cells. We have something very different than other cells. It makes us special. We have 2 processes that extend from our bodies. These processes carry messages from one neuron to another. The dendrites are our short tree-like branches and they carry the impulse - our message - toward our cell body and nucleus. The other process is our axon and it carries impulses away from our cell bodies. Some of us, like me, have great big long axons - up to 3 feet long. Others of us have dinky short axons.</td></tr>
</table>

<table>
<tr><td>A Player #5</td><td>Location of the Play: Sitting in the middle of the floor</td></tr>
<tr><td colspan="2">Cell #5 - When our axon is just about to end, it branches into many fine fibers. They are called terminal filaments and let us make contact with tissues in the body. As a motor neuron I send impulses down my axon and through these filaments to an eye muscle. I and my neighbors can really make it twitch!</td></tr>
</table>

<table>
<tr><td>A Player #6</td><td>Location of the Play: Sitting in the middle of the floor</td></tr>
<tr><td colspan="2">Cell #6 - We send impulses or messages to each other by starting the impulses at the axon of one of us. It then jumps to the dendrite of another neighboring neuron. The point where our messages pass from one neuron to another is called our synaptic junction. Remember those terminal filaments neuron #5 talked about. Well, synapes is where they come in close contact to another neuron.</td></tr>
</table>

II. The Doctor

Ditto 31 Situation Cards (Continued)

<table>
<tr><td>A Player #7</td><td>Location of the Play: Sitting in the middle of the floor</td></tr>
<tr><td colspan="2">Cell #7 - Some of us have a protective myelin sheath that covers our axon. Our cousin neurons, that live farther down the body have neurilemma protecting and nourishing their myelin. They sure are lucky to have it too! Because if their axon dies, the neurilemma helps them regenerate another. Boy, that sure is not the way it is up here. When we get hurt we get hurt.</td></tr>
</table>

<table>
<tr><td>A Player #8</td><td>Location of the Play: Sitting in the middle of the floor</td></tr>
<tr><td colspan="2">Cell #8 - Boy, is that ever true. Just the other day a whole group of cells got all dented and banged up when a basketball hit our head. Their axon really got the brunt of it and just laid there and died. I don't know what that neuron will do, in fact all his neighbors are having to find alternate routes for their messages.</td></tr>
</table>

<table>
<tr><td>A Player #9</td><td>Location of the Play: Sitting in the middle of the floor</td></tr>
<tr><td colspan="2">Cell #9 - Enough gossip!! Where were we? Oh, yes! When our axons are all following the same route, we tend to bunch together and form nerves. The spinal cord lets us all collect there for channeling into 31 pairs of spinal nerves. These nerves go out to the periphery of our body.</td></tr>
</table>

II. The Doctor

Ditto 32 Situation Cards (Continued)

<table>
<tr><td>A Player #10</td><td>Location of the Play: Sitting in the middle of the floor</td></tr>
<tr><td colspan="2">Cell #10 - The growth of the nervous tissue depends on us and other nerve cells that are not quite as special. (Actually all they do is give us nutritive chemicals.) We grow as the body metabolizes more food into protoplasm than we actually are able to break down. When we have grown too large to handle any more protoplasm we undergo division. This results in more of us that are smaller and can grow and in turn divide and grow. As each one of us is doing this, the tissue we make as a group also grows.</td></tr>
</table>

<table>
<tr><td>A Player #11</td><td>Location of the Play: Sitting in the middle of the floor</td></tr>
<tr><td colspan="2">Cell #11 - I might add that generally we neurons were all here when our body was born and none of us have done much division since then. But the glial tissue (the other nerve cells) have of course. We won't reach our optimum growth until about age 2. There is still a lot to complete in the myelination area. That's a long process! Without it we are much more vulnerable to assault. We may have some real battles on our hands in the next few years and need all the protection we can get.</td></tr>
</table>

Instructor: Player 12

<table>
<tr><td>Player #12</td><td>Location of Play: Sitting in a large circle around circle #1-the cells</td></tr>
<tr><td colspan="2">Hi, I'm the spinal cord. I am loosely suspended in the spinal canal. The canal is formed by contiguous parts of the vertebra. I am continuous with the base of the brain and taper to smaller strands below the second lumbar vertebra.</td></tr>
</table>

II. The Doctor

Ditto 33 Situation Cards (Continued

Instructor: Player 13

Player #13	Location of Play: Sitting in a large circle around circle #1-the cells
Nourisher and Protector - That's me! I'm the membranous covering of the spinal cord and brain. Collectively I'm called the meninges. I'm composed of three layers - the dura matter, arachnoid membrane and pia mater. The subarachnoid space contains spinal fluid that protects the cord and brain from mechanical injuries.	

Instructor: Player 14

Player #14	Location of Play: Sitting in a large circle around circle #1-the cells
Hi! We're the quintuplet metabolic functions. We are the processes that maintain life in and out of the cells. Remember when one of the cells talked about their metabolic process? Well, every cell has its own specific metabolic functions and they interact with the functions of the organs, tissues and glands. That's what makes this little girl's body work. My function is oxidation. That is combining elements with oxygen for cells to use as nutrition.	

Instructor: Player 15

Player #15	Location of Play: Sitting in a large circle around circle #1-the cells
Digestion is the name of my game. I convert ingested foods into simpler compounds for assimilation.	

II. The Doctor

Ditto 34 Situation Cards (Continued)

Instructor: Player 16

Player #16	Location of Play: Sitting in a large circle around circle #1-the cells
After digestion breaks foods into simpler compounds, I'm the process that body tissues use to take in the nutriment so that it becomes part of them. I'm assimilation!!	

Instructor: Player 17

Player #17	Location of Play: Sitting in a large circle around circle #1-the cells
A secretion is a substance formed by glandular cells. That's my process. This includes the endocrine glands and their hormone secretions.	

Instructor: Player 18

Player #18	Location of Play: Sitting in a large circle around circle #1-the cells
EXCRETION! - I'm the garbage man - always get the excess or the chemicals no one else wants. I remove waste products from tissues and cells. We are all important for normal neural cell functioning. If one of us is out of balance, it can have a terrible effect on the neuron cells. They are so vulnerable!	

II. The Doctor

Ditto 35 Situation Cards (Continued)

Instructor: Player 19

Player #19	Location of Play: Sitting in a large circle around circle #1-the cells
I am a hormone, and I am, so to speak, a metabolic agent. That is, I regulate the enzymes that act as catalysts of metabolic processes. I am produced by endocrine glands. Each of the glands produces a different hormone that reacts on a different enzyme.	

Instructor: Player 20

Player #20	Location of Play: Sitting in a large circle around circle #1-the cells
You've already heard about me. I am the enzymes. I act as a catalyst for chemical reactions. That means I speed things up a bit. Without me the metabolic processes would go haywire.	

Instructor: Player 21

Player #21	Location of Play: Sitting in a large circle around circle #1-the cells
We are the defenders of the body. Our job is to set up lines of battle with germs, the invaders. I am the first line of defense. I am the protective coverings of the body. My protective coverings extend into cavities that have an opening to the outside as the mouth, lungs and nose. On the inside they form a mucous lining of these cavities. My outermost area of protection is the skin.	

II. The Doctor

Ditto 36 Situation Cards (Continued)

Instructor: Player 22

Player #22	Location of Play: Sitting in a large circle around circle #1-the cells
I'm the second line of defense. My defense involves several tactics. When cells are injured they emit a chemical that allow lymph and blood to flow to the injured area causing inflammation. This chemical also signals white blood cells called phagocytes to enter the area and seal it off from healthy tissue. These phagocytes then consume the germs and destroyed cells. In a large invasion you can see redness and an accumulation of pus. That's my defensive line working.	

Instructor: Player 23

Player #23	Location of Play: Sitting in a large circle around circle #1-the cells
The third line of defense is located in the lymph nodes. I have strategically placed phagocytes there to engulf any germs that got past the first, second and third defense teams. I hope to catch them before they enter the bloodstream.	

Instructor: Player 24

Player #24	Location of Play: Sitting in a large circle around circle #1-the cells
I'm the fourth defender. I have placed my armies of phagocytes in the lining of the sinuses of the spleen. Therefore, if the germs did reach the bloodstream they must pass me before entering the general circulation.	

II. The Doctor

Ditto 37 Situation Cards (Continued)

Instructor: Player 25

Player #25

Location of Play: Sitting in a large circle around circle #1-the cells

I am the mighty immune system. My defense tactics are often what wins the war. I have the capability of producing a specific antibody for each infectious agent that enters the body. I call the invaders antigens, and often attack other foreign substances besides infection as food, drugs, chemicals, and air pollen. Each antigen that enters the body has its own unique chemical makeup. To render each and every antigen inactive, I must make a separate antibody for each antigen. Once I have manufactured an antigen, I don't forget it. At a moment's notice I can recall the antibodies I used for a previous antigen. In fact my system even works faster the second time around. This ability to fight off a second invasion quickly and without disease is called active immunity.

Instructor: Player 26 (Pass out ditto 44 when player finishes action.)

Player #26

Location of Play: Sitting in the outermost circle

I am immunizations. I have the ability of preventing 7 of the most threatening childhood diseases. Three of these - pertussis (whooping cough), mumps, and measles, have the potential of affecting the brain and/or protective coverings of the brain and spinal cord. These infectious diseases are called encephalitis and meningitis. They have the potential of destroying the neuron cells and pathways resulting in brain damage or mental retardation. Immunizations take little time and little money, yet 20 million children in the U.S. under 15 have not been immunized against one or more of these devastating childhood diseases.

II. The Doctor

Ditto 38 Situation Cards (Continued)

Instructor: Player 27

Player #27 Location of Play: Sitting in the outermost circle

Immunoglobulin or antiserum are my names. I offer only temporary immunity to some infectious diseases. My inoculation is a serum containing antibodies from an animal or human. Unlike immunizations I do not have antigens of the disease in my serum, therefore I cannot stimulate the child's antibody production. My real purpose is to offer protection to weak children or infants who have not been immunized and would have trouble fighting off the disease. I am only used after a child has been exposed. I don't have an antiserum for every disease and for some I have not been proven effective. But PARENTS SHOULD REMEMBER ME AND DISCUSS MY USE WITH THEIR PHYSICIAN IF THEIR INFANT BECOMES EXPOSED TO ONE OF THESE CHILDHOOD ILLNESSES BEFORE IMMUNIZATION IS COMPLETED.

Instructor: Player 28 (Pass out dittos 45 & 46 when player finishes acting.)

Player #28 Location of Play: Sitting in the outermost circle

I am a preventive technique against arbovirus. These are viruses communicated by mosquitos, that have bitten an infected bird or animal. The virus they carry has the ability to cause encephalitis. This disease can cause death to neuron cells. If enough of the cells are damaged or die, brain damage or mental retardation will result. There are no specific treatments or vaccines-prevention lies in effective control of mosquitos.

II. The Doctor

Ditto 39 Situation Cards (Continued)

Instructor: Player 29

Player #29	Location of Play: Sitting in the outermost circle
I represent general health and nutrition of the body. These are important factors in preventing childhood disease. Poor nutrition, fatigue and exposure play a large role in susceptibility to infection. AS A PARENT YOU MUST SET THE STAGE FOR PROPER NUTRITION AND ADEQUATE AMOUNTS OF REST. Therefore minimizing the chances of your child contracting a disease that has the potential to effect the mental, physical and emotional growth of your children.	

Instructor: Player 30 (Pass out dittos 47 & 48 when player finishes acting.)

Player #30	Location of Play: Sitting in the outermost circle
Signs and symptoms of illness are my bag. Prevention of mental retardation resulting from encephalitis, meningitis, metabolic disorders, endocrine imbalances, dehydration and toxic drugs or vaccines lies in parents recognizing the signs-symptoms of illness. Early detection leads to early treatment and less chance of complications leading to brain damage and/or mental retardation.	

II. The Doctor

Ditto 40 Situation Cards (Continued)

Instructor: Player 31

<table>
<tr><td>Player #31</td><td>Location of Play: Sitting in the outermost circle</td></tr>
<tr><td colspan="2">I advocate parents taking the role of overseer of medications whether preventive or treatment orientated. Drugs and vaccines can cause severe, irreversible side effects to the brain. Instead of the child's body accepting and utilizing a drug or vaccine to its advantage, it reacts to it as a toxic antigen. The immune system produces antibodies just as if the child was fighting an infection. The chemicals from the antibody-antigen interaction causes the child to react physically with a number of possible reactions: seizure; fainting; hives; fever; coughing; wheezing; shock. If the antigen/antibody chemical is toxic to neurons, brain damage could result.</td></tr>
</table>

Instructor: Player 32

<table>
<tr><td>Player #32</td><td>Location of Play: Sitting in the outermost circle</td></tr>
<tr><td colspan="2">I'm for regular checkups as a part of preventive medicine. A physician uses these checkups to: give routine immunizations; evaluate growth and development; do screening tests as vision, blood pressure, urine culture, TB skin test and to answer parent's questions about raising their child. These aspects are all important for detecting and preventing metabolic imbalances, endocrine imbalances, infectious disease, malnutrition and other serious health problems that could lead to brain damage and mental retardation. I am important for preventing diseases and complications that can result in mental retardation. Regular checkups should be routine.</td></tr>
</table>

II. The Doctor

Ditto 41 Situation Cards (Continued)

Instructor: Player 33 (Pass out dittos 49 & 50 when player finishes acting.)

Player #33	Location of Play: Sitting in the outermost circle

Hello! I'm the child's doctor. My job of prevention and early detection has been made easier by these parents. They realize the importance of responsible selection of health supervision in prevention of mental retardation. They realize that effective health supervision depends on parent-doctor compatibility and communication. A communicating relationship is needed for care and treatment of illness and emergency situations. The M.D. must be able to rely on parent information; and parents must be able to trust the doctor's judgment and rely on his availability. Good communication could mean the difference between detection and appropriate care and treatment or death, brain damage, or mental retardation. Here are my guidelines for a parent in selecting a doctor. This is an important factor in preventing mental retardation. (Pass out ditto!)

Instructor: Cell #1

B	Cell #1

I am dying. The little girl's body I live in is not functioning well. She was born with a genetic disorder called PKU. They detected it in the hospital and the doctors put her on a diet. She needs to be on this special diet and have tyrosine supplements every day. If only she could do that-I would feel so much better and be able to do my job. But her parents haven't followed the diet so I suffer. Her mom says the diet is too much trouble.

II. The Doctor

Ditto 42 Situation Cards (Continued)

Instructor: Cell #3

B Cell #3

Boy, do I ever hurt. Those chemicals are killing me. Genny's mom gave her some medicine that the doctor prescribed for her sister. Not only is the medicine wrong for Genny, but her mother gave her a double dose - "just to make sure she got those nasty germs!!" Genny is really sick and I don't feel much better. I'LL NEVER BE MY OLD SELF AGAIN! OW! If only Genny's mother would have called the doctor!! . . . . A DOUBLE DOSE - DUMB!!!

Instructor: Cell #5

B Cell #5

Genny's got a hormone deficiency called hypothyroidism. But no one seems to notice but me. I can't help but notice, it's suffocating me. I need that hormone called thyroxine to speed up the oxidative system - so I can get some more air. It really is stuffy up here without it. If someone doesn't notice how listless, weak and inactive she is I'll never have enough energy to grow. If Genny could talk she would tell them that she even gets dizzy and nauseous.

Instructor: Cell #7 (Pass out ditto 51 when player finishes acting.)

B Cell #7

Genny's got diarrhea. Her parents think all babies get it. They aren't worried, but I am. When Genny gets diarrhea she looses salts and water which are important to my metabolic processes. If I don't get just enough of these chemicals my whole system is thrown out of whack. I'll become dehydrated which will cause me to shrink. If many of us neurons shrink much more our brain tissues will tear or the blood vessels around us will hemorrhage. Then we are really doomed.

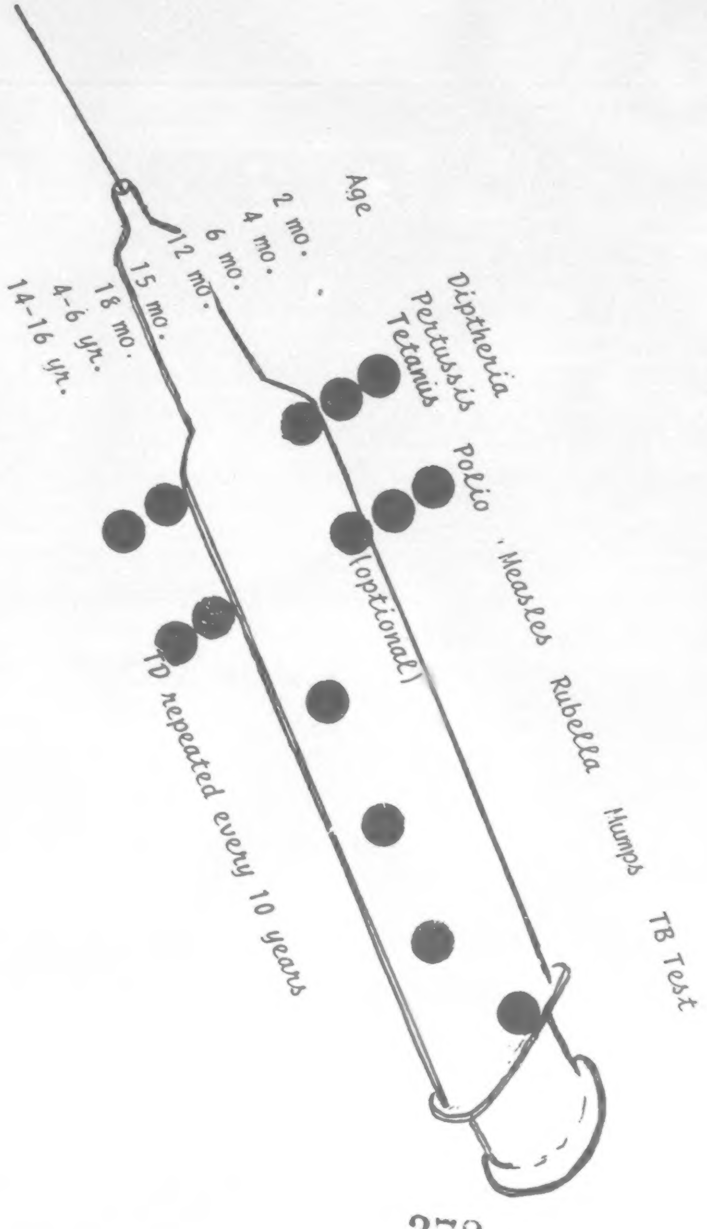
Ditto 43 Situation Cards (Continued)

Instructor: Cell #8

B	Cell #8
I guess her parents just don't realize that dehydration can cause lots and lots of us neurons to die. In fact, what's worse, Genny could die too! If they would only look at Genny they could tell she is sick. She has: diarrhea; is pale and lethargic; her eyes are dark and sunken; her lips dry; her soft spot is a dead giveaway-its sunken. Before long she will have one symptom I know they won't miss-a convulsion. All this could be corrected if they would call the doctor. He could determine how to replenish the fluids she has lost and not replaced.	

Ditto 44

Immunization Schedule


Age
2 mo.
4 mo.
6 mo.
12 mo.
15 mo.
18 mo.
4-6 yr.
14-16 yr.
Diptheria
Pertussis
Tetanus
Polio
(optional)
Measles
Rubella
Mumps
TB Test
TD repeated every 10 years

II. The Doctor

Ditto 45

Some Infectious Diseases That Can Result in Encephalitis and/or Meningitis.

Viral	Bacteria
Influenza	Pnemococcal
Measles 💉	Pneumonia Hemophilus Influenzae, B
Herpes Simplex I	Scarlet Fever Erysipelas
Checken Pox (Varicella Zoster)	Meningoccocal Cerebrospinal Meningitis
Vaccina	(Meningococcus Meningitis) Meningoccocal Sepsis
Mumps 💉	Bacillary
California Encephalitis 🦟	Pertussis-Whooping Cough 💉
St. Louis Encephalitis 🦟	Tuberculosis 🔗
Post-infection Encephalitis	Friedlanders Bacillus Pneumonia
Equine Encephalitis 🦟	

Mycosis (Fungi)
Hystoplasmosis 🔗
Coccidiodomycosis 🔗

💉 - preventable in general population by immunization.

🦟 - transmitted by insect bites, partially preventable.

🔗 - capable of detecting in early stage by skin test allowing for treatment and prevention of mental retardation.

Ditto 46

The Prevention of Encephalitis Caused by Infected Mosquitos
Is
Effective Mosquito Control
by

1. Killing of mosquitos by swatting, and use of insecticide sprays.
2. Living and sleeping quarters should be screened.
3. Use repellants and protective clothing when necessary, especially during the evening hours.

II. The Doctor

Ditto 47

Important Signs and Symptoms Requiring Prompt Action On a Parent's Part.

INFANTS

Contact Your Doctor

... If baby becomes pale or develops a yellow discoloration of his skin or whites of his eyes.

... If breathing is more rapid than usual or a child is gasping for breath.

... If the baby develops a persistent cough (occasional coughing is normal).

... If the baby is crying more than usual and/or if the cry seems different than usual.

... If soft spot (anterior fontanel) is bulging and tense or markedly sunken. The fontanel is normally soft and flat. Bulging may indicate meningitis, sunken may mean too much body fluid has been lost (dehydration).

... If the baby is more irritable than usual, fussing and fretting for much longer periods of time may indicate sickness.

... Lack of appetite may be early sign of developing sickness. This is indicated by lack of vigorous sucking reflex or infant's lack of interest in nursing.

... If there is marked change in normal sleeping.

... If there are explosive, frequent and watery stools (diarrhea). This may indicate an intestinal infection, food allergy, other physical problem. If diarrhea is not controlled dehydration can develop and result in mental retardation.

... If infant vomits more than one consecutive feeding expecially if vomiting is projectile.

... If baby develops a generalized rash over the body; if rash is causing weeping of the skin; if there are lesions that appear to have pus. Rashes around diaper area, neck and face are generally not emergencies. A doctor should be consulted during office hours if they are persistent.

... If an infant's stools are significantly fewer in number than normal pattern (as 4/day to suddenly

Ditto 48

Important Signs and Symptoms Requiring Prompt Action On a Parent's Part (Continued)

none. If abdominal distention is accompanying constipation, it could be an emergency.

... if an infant's diapers remain dry for significantly longer periods of time and are associated with poor milk or water intake.

... If an infant has a temperature of 101° and is not acting normal; if temperature of 100-101° persists for several days; if temperature is 102°+.

... If a baby has a convulsion with or without fever. (Febrile convulsions are due to a high temperature and may occur during first few months. If convulsions are infrequent or non-reoccurring they do not cause central nervous damage but are quite frightening.) Seizures may be symptomatic of another disease or disorder. Therefore a doctor should be consulted immediately to determine cause and course of treatment.

... If a baby looses consciousness.

... If the infant develops a rash, diarrhea, hyperactivity, unusual behavior changes, change in normal sleeping patterns, convulsion after receiving inoculation or medication.

TODDLER AND OLDER CHILD

... If the child complains of dizziness, earache, severe stomach cramps, persistent headache or stiff neck.

... If the child appears pale or bluish.

... If the child's breathing is more rapid than normal and/or is gasping for breath.

... If the child develops a persistent cough - whether dry and hacking or congested and hoarse.

... If the child is chilling.

... If the child exhibits a persistent fever of 101° or 102° for several days; if fever is 103°+.

... If appetite is markedly less than normal.

... If the child has diarrhea.

... If the child is vomiting.

... If the child is normally very active and prefers to lie down or just sit.

Ditto 49

SELECTING A PHYSICIAN

1. Develop a set of criteria for what you are looking for in a doctor.

pediatrician	or	family physician
he/she listens and discusses	or	he/she lectures
in group practice	or	in private practice
she/he makes all the decisions	or	she/he encourages parents to ask questions and participate in making decisions

2. Get a referral preferably from someone you know and trust.

friend
family
neighbor
other physician
local medical society
local hospital

social service agency as visiting nurse

Directory of Medical Specialists (found in medical or science section or local library)

3. Evaluate the physician's professional and personal competence.

... is he/she on staff of an accredited hospital?

... is he/she on staff of a teaching hospital?

(Parents must be aware of a physician's privileges at a good hospital. To avoid a situation requiring the physician to make a referral to another physician.

... what kind of professional training has the physician had in pediatrics?

... location of the office in relation to the home of the child.

Ditto 50 (Continued)

... is the doctor or an associate available for emergencies?

... does the physician or his nurse make house calls?

... is the doctor or an associate always reachable by phone?

(A physician is of little value if she/he or an assistant can't be reached in an emergency.)

... what is the fee schedule?

... does the physician instill confidence!

... is he/she comfortable to talk with?

... does the physician turn you off!

... does the physician act as if he is doing you a favor talking with you?

... does the doctor have F.A.A.P. as a part of his or her title?

(These initials stand for Fellow of American Academy of Pediatrics. They symbolize: a number of additional years of specialized training; additional residency; and passing the exam of the American Board of Pediatrics.)

Ditto 51

DIARRHEA/DEHYDRATION

This condition is symptomatic of an underlying disease. It is a unique symptom, because it has the potential of causing severe central nervous damage that could result in mental retardation.

Diarrhea is generally a result of a gastroenteritis infection. It can also result from food intolerance or drug reactions. Whatever the cause diarrhea is a serious condition. It can be fatal in infants if not treated. Diarrhea produces a loss of essential salts and water. Both of these are essential elements in (body and cellular) metabolic functions. When these elements are in an imbalance, metabolic processes conversely become imbalanced. Prolonged dehydration causes cellular shrinkage and tissue shrinkage. This is particularly devastating at the cortical level. The shrinkage causes further complications as brain tears and intracranial hemorrhages. The blood vessels become blocked causing brain cells to degenerate further. The results can be devastating.

Symptoms of dehydration are:

1. diarrhea
2. lethargy
3. paleness
4. sunken anterior fontanel
5. eyes appear dark and sunken
6. minimal fluid intake
7. urination-significantly less frequent
8. convulsions.

Severe dehydration can be prevented by early detection and supplementing the child's body fluids. This should not be done without medical supervision! Severe cases of dehydration need hospitalization.

Prevention

Call a doctor immediately upon observing these symptoms. It could preserve the mental well-being of a child.

II. The Doctor

Ditto 52

The Action Checklist

As a parent I:

____ Will make sure my child receives complete immunization for Diptheria, Tetanus, Pertussis (Whooping Cough), Polio, Measles, Rubella and Mumps.

____ Will have my child tested for TB during infancy and childhood.

____ Will be on guard for abnormal reactions to vaccines and drugs and report them immediately to my doctor.

____ Will not administer any drugs or medication to my child unless directed so by the physician.

____ Will not administer over-the-counter drugs to my child unless directed to do so by a doctor.

____ Will follow the instructions on prescription drugs explicitly.

____ Will adhere strictly to any diet or dietary supplementation that my child must follow.

II. The Doctor

Ditto 53

The Action Checklist (Continued)

____ Will stop medications on advise of the physician, not when I think my child looks well.

____ Will not use drugs beyond the indicated dates.

____ Will notify the doctor when my infant has been exposed to a serious childhood illness.

____ Will control the exposure of my child or infant to mosquitoes.

____ Will see that my child receives nutritious meals and snacks.

____ Will see that my child gets sleep or rest adequate for his age.

____ Will take my child for regular checkups. Three to four times during the first year and two times each year thereafter.

____ Will notify the doctor when my infant or child exhibits signs or symptoms of illness.

____ Will recognize the following as signs of illness.

paleness
yellow tint to skin
rapid breathing
gasping for breath
persistent cough
bulging or sunken soft spot
irritability
poor appetite
complaints of dizziness or headache
change in sleeping pattern
diarrhea
vomiting
generalized rash
constipation
temperature
convulsion
loss of consciousness

____ Will select a physician in a responsible and knowledgeable manner.

____ Will terminate an undersirable relationship with a physician and find another more compatible one.

____ Will maintain all medical care of my child under the supervision of one doctor.

○ ○ ○ Bibliography

Ashmore, Richard. "Societal and Individual Orientations Toward Prevention." The Prevention of Genetic Disease and Mental Retardation, Aubrey Milunsky, Ed., Philadelphia: W. B. Saunders, 1975.

Berry, Mildred E., Jon Eiserson. Speech Disorders: Principles and Practices of Therapy, Appleton-Century-Crofts, New York, 1956.

Birch, Herbert G. and Joan Gussow. Disadvantaged Children, Health, Nutrition and School Failure, Harcourt, Brace & World, 1970.

Bleck, Eugene E. and Donald A. Nagel. Physically Handicapped Children, A Medical Atlas for Teachers, Grune & Stratton, 1975.

Boston Children's Medical Center and Richard I. Feinbloom. Child Health Encyclopedia, New York: Delacorte Press, 1975.

Bullough, B. and V. L. Bullough. Poverty, Ethnic Identity, and Health Care, New York: Appleton-Century-Crofts, 1972.

Carter, Charles. "Endocrine Abnormalities." Handbook of Mental Retardation Syndromes, Springfield: Charles C. Thomas, 1975.

Carter, Charles. Handbook of Mental Retardation Syndromes, Springfield: Charles C. Thomas, 1975.

Carter, Charles. Medical Aspects of Mental Retardation. Springfield: Charles Thomas, 1978.

Carter, Charles. "Metabolic and Transport Anomalies." Handbook of Mental Retardation Syndromes. Springfield: Charles C. Thomas, 1975.

Cecil, Russell L. A Textbook of Medicine by American Authors, Saunders Co., 1944.

Child Health Assessment, Part I, A Literature Review, HRA75-30, Government Printing Office, Washington, D.C. 20402

Childhood Diabetes, "Parent's Magazine" November 1973, National Institute of Arthritis, Metabolism, and Digestive Diseases.

Chronic Childhood Illness: Assessment of Outcome DHEW Publ #(NIH)76-877, National Institutes of Health, Bethesda, Maryland 20014.

Common Cold, DHEW Pub. #(NIH)76-167, National Institute of Allergy and Infectious Disease.

Common Cold: Relief but No Cure, 589G, 1978. from Consumer Information Center, Pueblo, Colorado 81009.

Costrini, Nicholas V. and William Thompson (Ed.). Manual of Medical Therapeutics. Boston: Little, Brown and Co., 1978.

DeCoursey, Russell Myles. The Human Organism, New York: McGraw Hill, 1955.

Desnick, R. J. and others. "Enzyme Therapy in Genetic Diseases: Progress, Principles and Prospects." The Prevention of Genetic Disease and Mental Retardation, Aubrey Milunsky, Ed., Philadelphia: W. B. Saunders, 1975.

Desnick, R. J. and others. "Enzyme Therapy in Genetic Diseases: Progress, Principles and Prospects." Journal of Applied Social Psychology, 2:95, 1972.

Diabetes, 036G. Consumer Information Center, Pueblo, Colorado 81009.

Diabetes and Cardiovascular Disease--Fact Sheet. DHEW Pub. #(NIH)77-1212. National Heart, Lung and Blood Institute, Bethesda, Maryland 20014.

Eden, Alvin N. Handbook for New Parents, Berkley Publishing Corporation.

Eden, Alvin N. "Visit With a Pediatrician." American Baby Magazine, October 1978.

Feinbloom, Richard I. and Boston Children's Medical Center. Pregnancy, Birth & The Newborn Baby.

Ferry, Peggy C. "Neurological Evaluation of the Retarded Child: Recent Advances and Newer Diagnostic Techniques." Journal of the National Medical Association, Sept. 1976, pp. 398-401.

Fraser, Donald. "The Relationship Between Infantile Hypercalcemia and Vitamin D-Public Health Implications in North America." Pediatrics, Vol. 40, No. 6, December 1967.

General Guidelines for the Evaluation of Drugs to be Approved for use During Pregnancy and for Treatment of Infants and Children, The American Academy of Pediatrics.

Groover, Robert V. "Neurologic Manifestations of Endocrinologic Disease." Medical Aspects of Mental Retardation Ed. by Charles Carter, Springfield: Charles Thomas, 1978.

Hospital Associated Infections, DHEW Pub. No. (NIH)77-912, National Institute of Allergy and Infectious Diseases.

How Children Grow, DHEW Pub. No. (NIH)77-166, National Institute of Health, Division of Research Resources, Bethesda, Maryland 20014.

How To Keep Your Family's Health Records, HRA77-634, Consumer Information Center, Pueblo, Colorado 81009.

Hsia, Yugen Edward. "Treatment in Genetic Disease." The Prevention of Genetic Disease and Mental Retardation, Aubrey Milunsky, Ed., Philadelphia: W. B. Saunders, 1975.

Immunization, DHEW, American Medical Association, 535 N. Dearborn St., Chicago, Ill. 60610.

Infant Care, DHEW Pub. No. (OCD)73-15, National Institute of Child Health & Human Development.

"Is My Baby All Right?" National Foundation/March of Dimes

Lubchenco, Lula and Harry Band. "Incidence of Hypoglycemia in Newborn Infants Classified by Birth Weight and Gestational Age." Pediatrics, Vol. 47, No. 5, May 1971.

Margolis, Frederick. "Communicable Diseares-Catch As Catch Can?" Baby Talk Magazine, Oct. 1978.

Meningococcal Meningitis, DHEW Pub. No. (NIH) 71-123, National Institute of Allergy and Infectious Diseases, Bethesda, Maryland 20014.

Milunsky, Abrey. "Treating Genetic Disease." Know Your Genes, Houghton Mifflin Co.

"Noise Pollution; Neonatal Aspects." Pediatrics, Vol. 54 #4, Oct. 1974.

Nourse, Alan, E. The Body, Time-Life Books, New York.

Parent's Guide to Childhood Immunization, DHEW Pub. # (OS) 77-50058, National Institute of Child Health & Human Development.

"Pediatric Model Criteria Set." American Academy of Pediatrics, April, 1975.

The Parenting Advisor by Princeton Center for Infancy, Frank Caplan Gen. Ed. New York: Anchor Press/Doubleday, 1977.

Reich, Carl. "The Cellular Elements of the Blood." Clinical Symposia, Reprint, Vol. 14 #3 1962, Medical Educational Division, CIBA Pharmaceutical Co., Summit, New Jersey.

Report of the Committee on Infectious Diseases, American Academy of Pediatrics, 1977.

Respiratory Diseases: Task Force Report on Prevention, Control and Education DHEW Pub. No. (NIH) 78-1248 National Heart, Lung and Blood Institute.

Robinson, Nancy M. and Halbert B. Robinson. The Mentally Retarded Child, New York: McGraw-Hill, 1976.

Ross, Lawrence M. "The Cell." Clinical Symposia, Vol. 25 #4, 1973, Medical Educational Division, CIBA Pharmaceutical Co., Summit, New Jersey.

"Selected Recommendations of the Public Services Advisory Committee On Immunization Practices." HEW Center for Disease Control, Dec. 1977.

Shots for Tots, Indiana State Board of Health, Indianapolis, Indiana 46206.

Smith, Lendon. Improving Your Child's Behavior Chemistry.

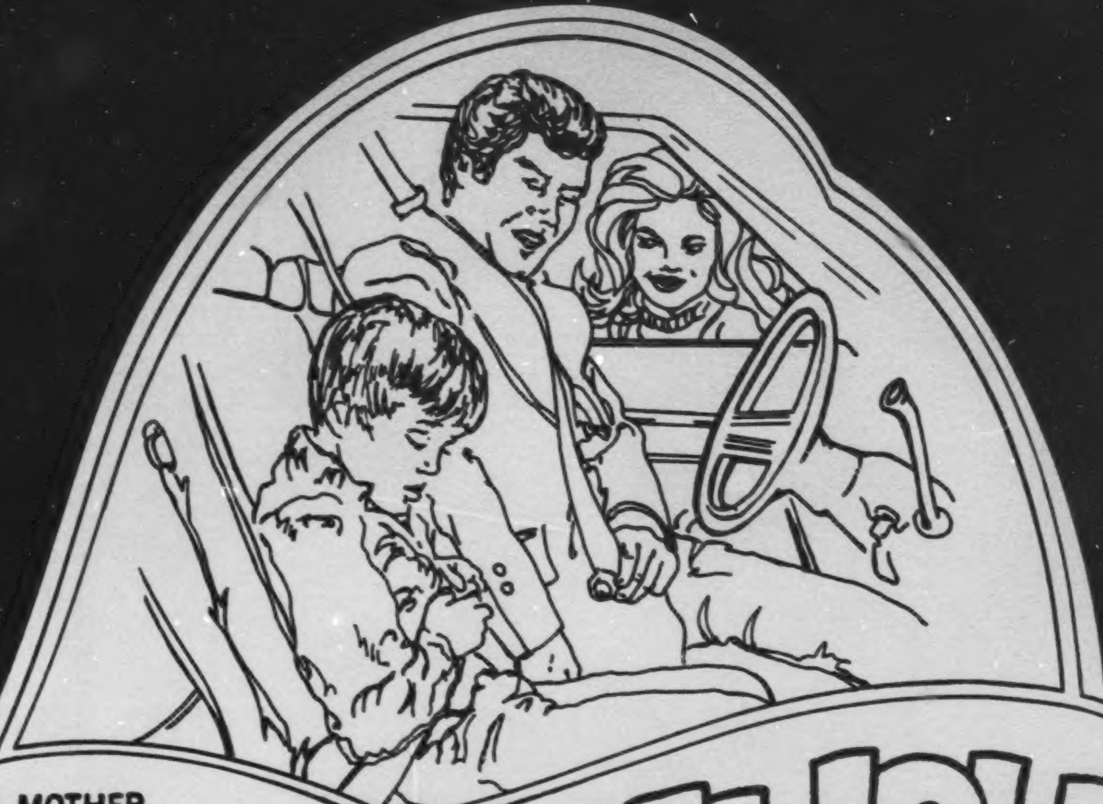
Spock, Benjamin. Baby and Child Care, New York: Pocket Books, rev. ed., 1976.

Standards of Child Health Care, American Academy of Pediatrics, 1972.

Strep Infections, DHEW Pub. No. (NIH) 77-775, National Institute of Allergy and Infectious Diseases.

The Triad of Infection, Eli Lilly and Company, Indianapolis, Indiana 46206.

Tuberculosis, U.S. Dept. of Health, Education, and Welfare, Public Health Service, Health Information Series No. 33.



THE MOTHER
AND FATHER
OF THE
GROWING
CHILD
IN THEIR
ROLE AS

HOUSEHOLD MANAGER

III. The Mother and Father of The Growing Child In Their Role as Household Manager

Their Responsibility in The Prevention of Mental Retardation In The Next Generation

Objectives

GENERAL

a. *To give the students an understanding of the responsibilities involved in being a Household Manager.*
b. *To give the students an understanding that childhood accidents can and do cause mental retardation and learning problems.*
c. *To give the students an understanding of how childhood accidents cause mental retardation and learning problems.*
d. *To give the students information on how to prepare a safe environment for a child.*
e. *To give the students the "know-how" to protect their future child from environmental hazards.*
f. *To give the students an understanding of how a child develops a safety conscience.*
g. *To give students skill in childhood emergency procedures.*
h. *To give the students motivation to be good Household Managers when or if they become a parent.*

SPECIFIC

Cognitive

1. The student will be able to state why an infant or young child is more vulnerable than an adult in an accident.
2. The student will be able to state two basic ways in which childhood accidents cause mental retardation or learning problems.
3. The student will be able to explain how a child develops a safety conscience.
4. The student will be able to relate the stage of development of a child to the type of accident that is typical for that age child.
5. The student will be able to list three (3) preventive measures for parents who are child abusers.
6. The student will be able to list ten (10) guidelines which a baby sitter should follow for the child and the baby sitter's safety.
7. The student will be able to evaluate infant and childhood equipment including automobile restraint systems as to potential hazards, safety features and appropriate use.
8. The student will be able to explain why the child under 4 years of age or under 40 pounds needs a special automobile restraint system.
9. The student will be able to evaluate toys for potential hazards to children.
10. The student will be able to evaluate a sports program for essential aspects of safety.
11. The student will be able to list substances in and around the home which may cause a child to have a severe allergic reaction.
12. The student will be able to list twenty (20) possible sources of lead poisoning to the young child.
13. The student will be able to state how often a young child should be screened for lead poisoning.
14. The student will be able to explain how lead poisoning is treated and prevented from reoccurring.
15. The student will be able to outline a poison prevention plan for a home with small children.
16. The student will be able to list ten (10) common causes of suffocation accidents in the young child.
17. The student will be able to explain two (2) drowning prevention techniques for children.
18. The student will be able to list five (5) ways in which asphyxiation accidents can be prevented.
19. The student will be able to state the percentage of children sustaining permanent brain damage from falls and head injuries.
20. The student will be able to list five (5) common ways in which young children can be protected from electrical shock in the home.
21. The student will be able to demonstrate child emergency skills for choking, respiratory distress, heart failure, a closed head injury, an insect sting, electric shock and poisoning.

Affective

1. The student will feel that an infant and a young child are more vulnerable in an accident than an adult.
2. The student will feel that childhood accidents can cause mental retardation.
3. The student will feel that it is a parent's job to develop a safety conscience in a child.
4. The student will feel that at each stage of development the dangers to the child change.
5. The student will feel that there are ways for a parent who abuses their child to get help.
6. The student will feel that the choice of a baby sitter is important to the safety of a child.
7. The student will feel that a parent must use safety criteria when purchasing equipment and toys for a child.

8. The student will feel that an infant, young child and child must be restrained in an automobile using a restraint system appropriate to their size.
9. The student will feel that sports programs must put safety first for the sake of children.
10. The student will feel that the home has potential substances to cause a severe allergic reaction.
11. The student will feel that poisoning is a major threat to children.
12. The student will feel that young children should be screened for lead poisoning.
13. The student will feel that it is possible to prevent suffocation, asphyxiation and electric shock accidents with good household management.
14. The student will feel that falls and head injuries can cause brain damage.
15. The student will feel that it is important for parents to know childhood emergency procedures.
16. The student will feel that one of the important roles of a parent is that of Household Manager.

Background Information for the Teacher

Children face risks today that were never experienced by the children of previous generations because of "advanced technology" which both enriches and endangers their young lives. Thus the role of the mother and father as "household managers" becomes an increasingly more difficult and demanding role requiring ever expanding knowledge on how to provide a safe environment for their growing child or children.

THE ALARMING AND ENLIGHTENING FACTS

... There are more than 50 million accidental injuries a year in the United States resulting in

115,000 deaths
400,000 permanent disabilities.

Yearly the cost of permanent disabilities parallels the cost of waging war in Viet Nam.

... 2/3's of accidental trauma is in the young. More children die and are injured from accidents than from the 5 most frequent causes of childhood death combined. One third of all childhood deaths are due to accidents.

Thus as the "threat of disease" is being lifted through medical and technological advances the "scourge of accidents" is being put in its place.

Age has a great correlation to accidents:

... Deaths from accidents are higher during the first year of life than in any other year throughout childhood although this is presumably the most protected year of life, more than any other from birth to 18.

... From one year of age to four, accidents are the most frequent cause of death causing 3 times as many deaths as birth defects, 5 times as many deaths as malignancies and 5½ times as many deaths as influenza and pneumonia in this age group. Also in this age group there is a steady decrease with each succeeding year which suggests learning from experience.

... Accidents remain the biggest single threat in the first 15 years of life.

Consider some statistics which reveal what types of accidents are a threat to children during the growing years, birth to 18.

- ... 1/3 of childhood deaths are from automobile caused injuries.
  1/3 of childhood deaths are from drowning.
  1/3 of childhood deaths are from other accidents.
- ... Suffocation from food or small objects is the leading cause (30%) of all deaths from accidents for children under one year. Vomitus or milk are primarily responsible for these deaths. Accidental suffocation from mechanical causes such as cords or cribs causes 1/5 of childhood fatalities under one year.
- ... Head injuries are most common in the young child. Falls on stairs cause 250,000 disabling accidents a year. One million children sustain head injuries a year. As many as 60% of these have permanent brain damage.
- ... Poisoning affects more than one million children each year. Most of these children are under 5 years of age.
- ... Toys cause serious injury in 175,000 children each year. Many injuries are caused by playthings or parts of playthings being caught in the child's throat.
- ... More than 300,000 children under 14 go to hospital emergency rooms each year because of bicycle accidents.

"Childhood Accidents and Their Relation to Mental Retardation"

The infant and young child are not a small replica of the adult. The head of the child is much more vulnerable than that of an adult. Any childhood accident that

1. interferes with the oxygen supply to the brain
2. physically injures brain cells
3. indirectly injures brain cells from biochemical imbalances or toxic substances

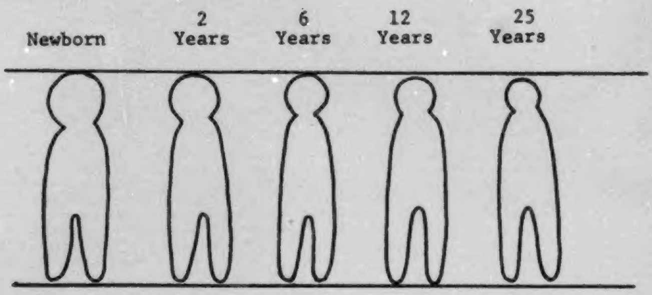
carries with it the threat of subsequent mental retardation. Brain cells can never regenerate as many other types of body cells can. This unit then will deal with childhood accidents which can result in mental retardation. They are a major cause of mental retardation. A great deal can be done to prevent mental retardation caused by accidents. In fact theoretically it is a totally preventable cause of mental retardation.

The Vulnerable Child

The stage of development of the body is very significant in how accidental injury will affect it.

The newborn's head is 1/4 of its body length while in the adult the head is 1/7 of its body length. By two years of age the head is 75% of its adult size. This concept is pictured in figure 40.

Figure 40. Variations in Head and Body Proportions of Newborn and Adult.



8. The student will feel that an infant, young child and child must be restrained in an automobile using a restraint system appropriate to their size.
9. The student will feel that sports programs must put safety first for the sake of children.
10. The student will feel that the home has potential substances to cause a severe allergic reaction.
11. The student will feel that poisoning is a major threat to children.
12. The student will feel that young children should be screened for lead poisoning.
13. The student will feel that it is possible to prevent suffocation, asphyxiation and electric shock accidents with good household management.
14. The student will feel that falls and head injuries can cause brain damage.
15. The student will feel that it is important for parents to know childhood emergency procedures.
16. The student will feel that one of the important roles of a parent is that of Household Manager.

☐

Background Information for the Teacher

Children face risks today that were never experienced by the children of previous generations because of "advanced technology" which both enriches and endangers their young lives. Thus the role of the mother and father as "household managers" becomes an increasingly more difficult and demanding role requiring ever expanding knowledge on how to provide a safe environment for their growing child or children.

THE ALARMING AND ENLIGHTENING FACTS

... There are more than 50 million accidental injuries a year in the United States resulting in

115,000 deaths
400,000 permanent disabilities.

Yearly the cost of permanent disabilities parallels the cost of waging war in Viet Nam.

... 2/3's of accidental trauma is in the young. More children die and are injured from accidents than from the 5 most frequent causes of childhood death combined. One third of all childhood deaths are due to accidents.

Thus as the "threat of disease" is being lifted through medical and technological advances the "scourge of accidents" is being put in its place.

Age has a great correlation to accidents:

... Deaths from accidents are higher during the first year of life than in any other year throughout childhood although this is presumably the most protected year of life, more than any other from birth to 18.

... From one year of age to four, accidents are the most frequent cause of death causing 3 times as many deaths as birth defects, 5 times as many deaths as malignancies and 5¼ times as many deaths as influenza and pneumonia in this age group. Also in this age group there is a steady decrease with each succeeding year which suggests learning from experience.

... Accidents remain the biggest single threat in the first 15 years of life.

Consider some statistics which reveal what types of accidents are a threat to children during the growing years, birth to 18.

... 1/3 of childhood deaths are from automobile caused injuries.
1/3 of childhood deaths are from drowning.
1/3 of childhood deaths are from other accidents.

... Suffocation from food or small objects is the leading cause (30%) of all deaths from accidents for children under one year. Vomitus or milk are primarily responsible for these deaths. Accidental suffocation from mechanical causes such as cords or cribs causes 1/5 of childhood fatalities under one year.

... Head injuries are most common in the young child. Falls on stairs cause 250,000 disabling accidents a year. One million children sustain head injuries a year. As many as 60% of these have permanent brain damage.

... Poisoning affects more than one million children each year. Most of these children are under 5 years of age.

... Toys cause serious injury in 175,000 children each year. Many injuries are caused by playthings or parts of playthings being caught in the child's throat.

... More than 300,000 children under 14 go to hospital emergency rooms each year because of bicycle accidents.

"Childhood Accidents and Their Relation to Mental Retardation"

The infant and young child are not a small replica of the adult. The head of the child is much more vulnerable than that of an adult. Any childhood accident that

1. interferes with the oxygen supply to the brain
2. physically injures brain cells
3. indirectly injures brain cells from biochemical imbalances or toxic substances

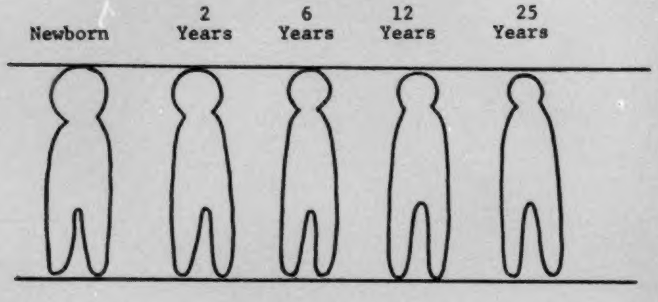
carries with it the threat of subsequent mental retardation. Brain cells can never regenerate as many other types of body cells can. This unit then will deal with childhood accidents which can result in mental retardation. They are a major cause of mental retardation. A great deal can be done to prevent mental retardation caused by accidents. In fact theoretically it is a totally preventable cause of mental retardation.

The Vulnerable Child

The stage of development of the body is very significant in how accidental injury will affect it.

The newborn's head is 1/4 of its body length while in the adult the head is 1/7 of its body length. By two years of age the head is 75% of its adult size. This concept is pictured in figure 40.

Figure 40. Variations in Head and Body Proportions of Newborn and Adult.



Besides being relatively large in relation to body size the child's head is less well protected than the adult's. To be born the cranial bones must be "yielding" to pass through the birth canal so they are thin, weak and loosely held together. Parts of the brain are protected only by soft tissue and during the first few months of life the cranial bones may be displaced towards the brain in an accident.

This comparatively big head, partially protected is balanced on a neck that is smaller and thinner in relation to the head than it is in an adult or older child. The weak muscles of the small child and infant's neck are not able to "damp" violent movements to the same degree as the neck of an adult.

The vertebrae of the infant consists mainly of cartilage for it has not yet ossified or become hard and rigid. The spinal cord is therefore more vulnerable as are its nerves and blood vessels.

Injuries to the lungs are more possible because the thin and more elastic chest wall of the child cannot give the same protection as the thicker and more rigid rib cage of the adult.

Interference With Oxygen To The Brain

A lack of oxygen to the brain in the growing child is a cause of mental retardation which is increasing in frequency although not as rapidly as physical injury to the brain. Use of better resuscitation methods and restoring heart function after accidents accounts for the increase. Many survivors have sustained a long period in which little or no oxygen was reaching the brain producing generalized brain damage resulting in mental retardation of various degrees and motor handicaps. The "greedy brain" of the infant consumes 50% of the total blood oxygen. Figure 41 illustrates the relation of lack of oxygen to the brain to brain damage.

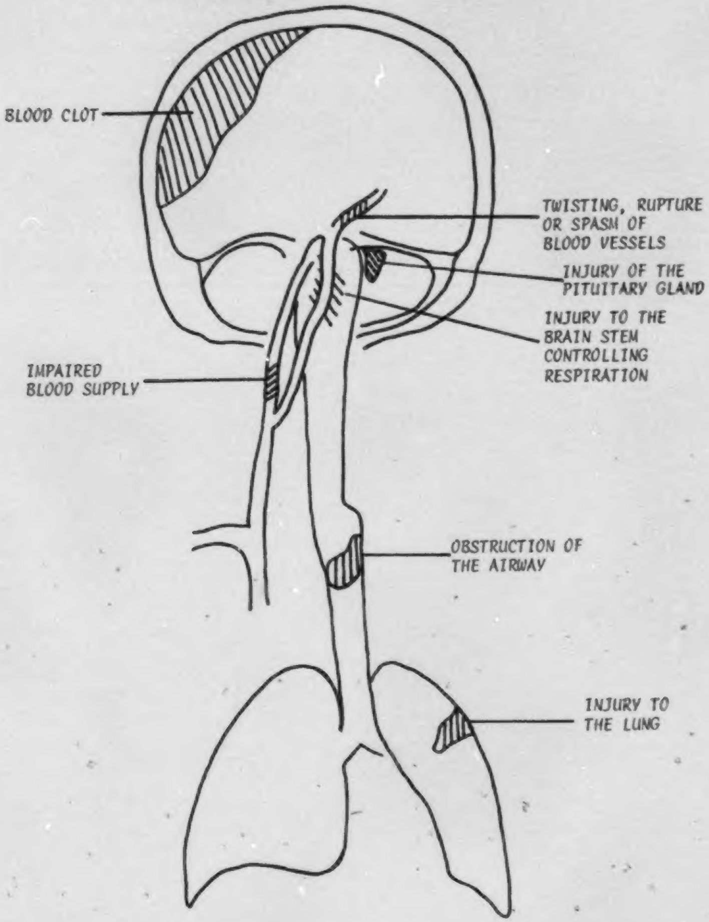
Figure 41. The Brain Damages Caused by Lack of Oxygen to the Brain From Four to Ten Minutes.

Term of Death	Length of Oxygen Deprivation	Brain Damage
Clinical Death	0 - 4 minutes	Brain damage not likely
	4 - 6 minutes	Brain damage probable
Biological Death	6 - 10 minutes	Brain damage probable
	over 10 minutes	Brain damage certain

The neurons of the brain must have a constant, uninterrupted supply of oxygen.

Figure 42 shows the ways in which the supply of oxygen to the neurons of the brain may be impaired as the result of an accident.

Figure 42. Possible Causes of the Reduction of Oxygen to the Brain and Injury to the Brain.


BLOOD CLOT
TWISTING, RUPTURE OR SPASM OF BLOOD VESSELS
INJURY OF THE PITUITARY GLAND
INJURY TO THE BRAIN STEM CONTROLLING RESPIRATION
IMPAIRED BLOOD SUPPLY
OBSTRUCTION OF THE AIRWAY
INJURY TO THE LUNG

The steadily rising number of head injuries brings with it increasing numbers of individuals with brain damage. The estimated costs involved in head injuries per year is 2 billion dollars. Coupled with cost is the suffering of the individual who is brain damaged plus the demands put upon that individual's family. The automobile and other motorized vehicles are largely responsible for increased mental retardation due to brain damage. The automobile is a lethal machine which has killed more people than all wars put together and has disabled countless others.

The stage of development at which injury to the brain takes place has a major influence on the long and short term consequences for the child. The immature brain which is rapidly growing is more vulnerable to injury than the brain of a child over two in whom the rate of brain growth has decreased or slowed. The brain is most vulnerable to injury the first months of life but still very vulnerable in infancy and early childhood.

The young child does have several advantages over the adult in the event of brain injury:

1. The skull of a child dissipates the force of the impact to a greater degree than an adult because their skull is more elastic and less rigid.
2. The child's brain has more plasticity than the adult's. Functions may more readily be transferred from one side to another or to another area. Brain injuries causing language loss in the adult will usually not cause such a loss up until the age of 3. Injury up until that time may cause delayed language or temporary language loss. In early childhood the two hemispheres of the brain are used for speech while in the adult speech is handled by the left side of the brain in the majority of people.

Head injury may be thought of as a continuum. At the lower, less severe end of the continuum there is no damage to the brain in a head injury. At the upper, severe end of the continuum brain damage is extensive.

A Continuum of Head Injuries

1. Hematoma: A lump caused by broken blood vessels just under the skin. The brain is separated from the injury by the skull and other protective devices.
2. Concussion: The whole brain is jolted and banged up against the skull wall. Usually no brain damage.

3. **Fractured Skull**: The skull bone has a crack in it which does not usually affect the brain.

4. **Brain Hemorrhage**: Bleeding under the skull which can cause death or brain damage. The intracranial hemorrhage can calcify and later cause mental deterioration. The clot can be removed surgically if diagnosed.

5. **Direct Injury and Swelling of The Brain**: Injury to the head causes tears in the brain tissue and bleeding within the brain. This severe type of injury to the brain occurs much more often now because of the great number of automobile accidents. The child may be very severely retarded.

Severe head injuries can result in a great variety of symptoms:

Mental	Apathy
	Sense of great well-being
	Emotional fluctuations
	Loss of social restraint
	INTELLECTUAL DEFICITS
	Loss of memory (particularly short term memory)
	Perceptual problems
	Poor concentration
	Impairment of judgment
	Increased tendency to become hyperactive, destructive and impulsive.
Physical	Scar tissue
	Loss of brain cell
	Loss of myelin
	Build-up of cerebral spinal fluid
	Swelling of brain
	Cerebral palsy
	Speech problems
	Vision problems
	High-frequency hearing loss
	Seizures
	Balance problems
	Amnesia

The length of unconsciousness is the key to the severity of damage in closed head injuries. Ninety-three percent of individuals unconscious a week or more become cerebral palsied. A period of amnesia greater than 24 hours is usually a sign of severe brain damage in a closed head injury. If seizures occur later than 7 days after the injury they are more likely to persist. Twenty-five percent of those receiving severe head injury develop behavior disorders within one year of the injury.

The maximum recovery of intellectual ability occurs within nine months after the end of amnesia. Complete recovery may take from 2 to 6 years to determine how much intellectual functioning will be regained and how the individual will adapt and develop coping strategies.

Accidents most often occur in the following situations when:

1. The child is tired or hungry.
2. The parent is tired, hungry, worried.
3. The parent does not have enough energy to take precautions.
4. The environment of the child is unsafe.
5. The mother is ill, about to menstruate or pregnant.
6. There are tensions or conflicts between parents.
7. The family is moving.
8. The family is on vacation.
9. The family is rushed.
10. There is illness or death in the family.
11. The parents lack understanding of what to expect at various stages of development.
12. The "caretaker" is too young or irresponsible.
13. The needs of the family to survive are more pressing than the needs of the child.
14. A minimum of supervision is a way of life rather than an exception.

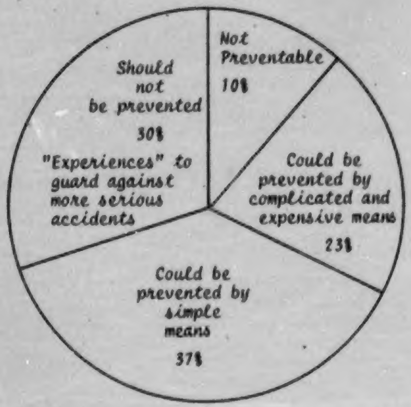
"What must parents do to prevent mental retardation in their growing child due to accidents?"

1. They must know what causes childhood accidents.
2. They must know how child development relates to accidents.
3. They must know how to prepare an environment which is safe for a growing child.
4. They must develop in their child a balanced and positive attitude about safety.
5. They must protect their child from an environment which is dangerous.
6. They must practice emergency first aid techniques.

Nine out of ten accidents to children could be avoided if parents were better informed about childhood safety. It is the purpose of this unit to have future parents more aware of and have basic knowledge in the prevention of childhood accidents, how to prepare an environment that is suitable for the optimum development of the brain and nervous system, how to protect the child from the environment as well as teach them safety concepts, and how to handle emergency situations which are a threat to the oxygen supply to the brain and threaten to damage the brain. Adults are presently poorly prepared in this role they must take as household manager. It takes time, maturity, responsibility and love to organize the household so that the growing child will be protected from a potentially dangerous environment and at the same time develop freedom and independence from all the experiences that the world can provide.

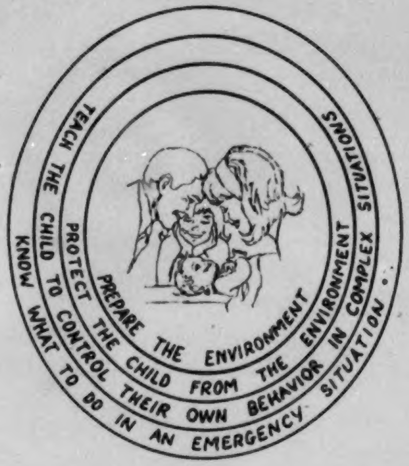
Not all childhood accidents should be avoided! Sometimes an accident is the price a child and parent must pay for the "experience" against which safety concepts will be built to prevent more serious injuries. Developing a safety conscience in the child is a gradual process. Perhaps 90% of childhood accidents could be considered preventable. Of that 90% perhaps 30% should not be prevented for they are those "experiences" against which safety concepts will be built. Another 37% could probably have been prevented by simple means by the parents and 23% could be prevented by more radical and expensive means by the community. These concepts are pictured in figure 43.

Figure 43. The Pie of Accident Prevention.



To prevent that 37% of childhood accidents parents must prepare the safe environment for a child, protect the child from the environment which cannot be made "safe", teach the child about safety and know what to do in an emergency situation. Figure 44 illustrates the role of the parent as household manager.

Figure 44. The Role of The Parent as Household Manager: "The Egg of Safety."


PREPARE THE ENVIRONMENT
PROTECT THE CHILD FROM THE ENVIRONMENT
TEACH THE CHILD TO CONTROL THEIR OWN BEHAVIOR IN COMPLEX SITUATIONS
KNOW WHAT TO DO IN AN EMERGENCY SITUATION

Child proofing a home no matter how completely it is done is only one responsibility the parent must take as household manager. It is a necessary component of safety but if it is the only component it can be a very unrealistic and negative approach to accident prevention. In the first five years of life the child must move from being 100% parent protected as a newborn to being 10% parent protected as a 5 year old and 90% self protected.

An infant continually experiences the parent's complete caring for him or her. In observation and casual interchange the child feels the parent's attention and affection. This is one of the most important tools parents have in developing safety attitudes in the child. The child not only feels the parents "caring" but observes how the parent behaves in a variety of situations. This phenomena begins early in the first year of life. From this care and observing the child gradually learns how to care for himself and others because he feels that he is worth taking care of. This is further enforced as the child develops language and dangerous aspects of his environment are labeled, defined, explained. Discipline is coming into play also. Limits are set through the parent's example, explanations, encouragement and insistence. To be truly effective safety training with the discipline it requires should be given with concern, acceptance and love.

As the child grows she or he is always outgrowing the safety of their environment. The environment continually expands beyond the point where a parent can or should be physically with the child every moment of the day. The child must begin very early to learn that they must gradually assume control of their own behavior in a variety of situations and environments. Parents must protect their child from dangerous situations but at the same time expose them to increasingly demanding experiences that show the child the great richness of life and diversity of experiences that provide her or him with a stimulating environment. The ideal is to instill in the child independent exploration and experiences with full respect for safety of himself and others.

Figure 45 shows how the child is always outgrowing the safety of their present environment and moving on to a new ratio of independence and protection.

Figure 45. Safety by Age.

Age	*Typical Accidents*	Safety
Birth to 12 months 100% Protective Environment *The highest death rate from accidents for children is between 3 and 12 months.	*"Fall & Crawl Accidents"* *Suffocation* *Falls* *Poisoning* *Drowning* *Burns*	Don't underestimate the rapid development of physical and mental skills. Never leave the baby alone when awake especially in the bathtub. Keep dangerous and small objects out of reach as well as poisonous substances. Toys or objects that a baby plays with should not be smaller than their mouth. Expect the unexpected.
1 to 5 years Moves from 90% to 10% protected environment	*"Home-Exploration Accidents"* *Motor vehicle* *Poisoning* *Falls* *Burns*	Extensive safety education of the child must take place by the observation of adults, knowing the "why" of former limits and bringing behavior under their own control.
6 to 14 years 5% Protected Environment	*"Exposure-to-the-World Accidents"* *Motor vehicle* *Falls* *Drowning*	Guidance and reminders are important. This is a time when defensive behavior is learned. Not only must the child act positively himself but must anticipate the sometimes dangerous actions of others.
14 to 18 years	*"Exploration-of-the-World Accidents"* *Motor vehicle* *Drowning* *Falls* *Burns*	Discussion and expanding knowledge with the child as well as making sure that "new adventures" are well supervised with adequate facilities and safety precautions become important.

Knowledge of the physical, mental and social development of the child are also important for understanding how to prevent childhood accidents.

PROTECTION FROM THE ENVIRONMENT - PEOPLE

Sad but true: One of the things that some children must be protected from in their environment is their own parents. To put it more positively parents should be prepared-to-be-parents and if they find themselves striking out against their child or children they should immediately seek help.

By law and by custom the right of every couple to bear children no matter how poorly qualified has been zealously protected. For decades society has refused to break through the veil of privacy that allows parents to "discipline" children in a "manner" they choose. *EQUALLY IMPORTANT HOWEVER ARE THE RIGHTS OF CHILDREN TO A SAFE AND HEALTHY ENVIRONMENT IN WHICH THE PARENTS CARRY OUT THEIR ROLES OF DOCTOR, DIETITIAN, HOME MANAGER, PSYCHOLOGIST, TEACHER AND LAWYER IN A WAY THAT IS NURTURING TO THE CHILD.*

Deprivation in children originally focused on hospitals and orphanages or foundling homes. Children who had their physical needs taken care of in such settings died, became mentally retarded and/or developed behavior problems because of a lack of stimulation, socialization and nurturing from parents or a parent figure. It is now known that for an infant and young child to survive and to develop both intellectually and socially as well as physically it needs stimulation and socialization from a "nutrient" called "mothering and fathering." Without the development of trust in a parenting figure and all that trust implies the child's personality will be warped and scarred. So the
absence
separation
or
DISTORTION
of parenting can have serious consequences for the child.

Mankind has a history of violence which still continues. The literature is full of characterizations of children subjected to abuse. Read Dickens, Hardy or The Brothers Grimm. Read today's paper which vividly portrays the exploitation of children by adults.

A Definition

CHILD ABUSE is all physical, mental or verbal acts that result in measurable harm to the child.

ABUSE

Physical Abuse: Non accidental injury of the child which takes many forms.

Physical Neglect: Failure to provide the necessities of life for the child including adequate medical care, food, housing, clothing, supervision, and general concern.

Verbal Abuse: Yelling, scolding and criticizing the child.

Emotional Neglect: Ignoring, threatening, terrorizing or neglecting the child. The child is deprived of human caring.

Sexual Abuse: Sex acts between a parent and child.

A Growing Consciousness

Today there is an ever growing body of knowledge about the abused and the abuser. This knowledge is a rather recent phenomena. Cruelty to animal laws were being enforced before cruelty to children laws were even being contemplated. In ...

... 1870 New York State formed a Society for The Prevention of Cruelty to Children.

... 1874 The first legal interference on the part of an abused child in the United States took place. The American Society for The Prevention of Cruelty to Animals sought legal protection of a child who was regularly beaten and was also malnourished on the basis that she belonged to the animal kingdom!

... 1930 Child Protection Agencies began to form.

... 1950 The Literature began to discuss child abuse as a phenomena.

... 1962 Henry Kempe, M.D. coined the word battered syndrome.

... 1962 The first law was passed requiring the reporting of child abuse.

... 1973 The National Clearinghouse for Child Abuse established in Denver, Colorado.

... 1978 Thirty states have a central registry for the reporting of abuse.

Twenty two states require teachers to report abuse.

Four states consider a mentally retarded citizen of any age covered by child abuse laws.

States require physicians to report suspected child abuse.

Some Statistics

Even though it is very hard to read and to face the facts today we know that parents can and do strike, molest, strangle, burn, fracture, starve and even torture children. Child abuse is a major cause of mental retardation, emotional and behavior problems.

- ... 300,000 cases of child abuse are reported each year.
- ... 1.6 million children are estimated to be abused each year.
- ... 2,000 children each year are killed from abuse. The average age of the child abused is slightly under 3. In the 1 to 6 months age range it is second only to the sudden death syndrome as a cause of death. In the 1 to 5 year age range it is second only to true accidents as a cause of death.
- ... *6,000 CHILDREN ARE PERMANENTLY BRAIN DAMAGED FROM CHILD ABUSE EACH YEAR. STATISTICS OF THOSE CHILDREN WHO ARE ABUSED AND SUBSEQUENTLY BECOME MENTALLY RETARDED RANGE FROM 30 to 53%. A HISTORY OF SKULL FRACTURE AND BLEEDING WITHIN THE BRAIN IS FOUND MORE THAN 4 TIMES AS FREQUENTLY IN THE RETARDED CHILD THAN THE NORMAL CHILD.*
- ... *10% OF ABUSED CHILDREN NEED LONG-TERM SPECIALIZED PSYCHIATRIC TREATMENT.*
- ... 25% of children brought into U.S. emergency rooms who appear to have been injured in an accident are in fact abused children.
- ... 35% of abused children will be seriously injured or die as a result of child abuse.
- ... Abuse reoccurs in approximately 50% of cases where there is no intervention.
- ... Less than 10% of child abuse cases which result in intervention are decided in favor of the child.
- ... The average age at which a child is first abused is under 4 with the majority under 2.
- ... Child abuse occurs in all income, religious, racial, ethnic, social and intelligence levels.
- ... A high percentage, 73-82%, of deliquent children have been abused.
- ... Violence is a family matter for 34% of all homicides take place in the immediate family, another 34% among close friends or relatives.
- ... *80% OF ABUSIVE INDIVIDUALS CAN BE HELPED. VIOLENCE WHICH KILLS, DISABLES AND RETARDS CHILDREN CAN TO A GREAT EXTENT BE PREVENTED.*

A Look At The Abuser - The Abuser Who Can Be Helped

Who is the parent who dislikes, rejects, neglects or strikes out either occasionally or repeatedly at their child or children? Such a parent may have one, several or a composite of the following characteristics:

1. The majority of abusive parents are married and living together.
2. The father abuses slightly more often than the mother.
3. The average age of the abusive father is 30 and the average age of the abusive mother is 26.
4. Thirty to 60% of abusers perceive themselves as having been abused by their parent or parents.
5. A high percentage of abused children were conceived before marriage, in a youthful marriage, in a forced marriage or in an unwanted pregnancy.
6. Many abusers had a "picture book fantasy" concept of "having a baby" in which the infant would be totally loving and rewarding giving the parent no grief or pain in his or her development. Such an individual pictures an infant and child as giving to the parent, not the reverse.
7. Abusers tend to be isolated and/or with limited mobility with no one to turn for help and relief.
8. Abusive parents may have a stressful marriage or relationship including financial difficulties and a disorganized household.
9. There is often a relationship between a parental drinking problem and child abuse.
10. A large number of abusers have little knowledge of the developmental characteristics of children and of their needs at those various stages of development.
11. Many abusive parents do not willfully take out their problems on their children.
12. More distinct types of child abusers can be found among the following groups:
    a. persons with organic disorders who have an organic base to violence and aggression.
    b. psychotic persons who have a serious psychological disturbance.
    c. mentally retarded individuals who are impulsive in their outbursts of anger.

The Abused

Figure 46 summarizes the various characteristics or results of abuse manifest in the child. As in the abuser the child may have one, some or many of these characteristics.

Figure 46. The Results of Child Abuse

Physical	Intellectual	Emotional	Social
Brain damage. Malnutrition 35%. Anemia. Dehydration. Failure to thrive 35% Height & weight below third percentile. Poor hygiene. External bruises, abrasions, cuts, burns, tissue swelling, hematomas. Internal injuries particularly ruptures, dislocations, fractures. Injuries in unusual places. Repeated physical injury.	Mental Retardation. Language Deficits. School problems. Deprivation syndrome: Lack of interaction, stimulation, love and care.	Emotionally disturbed. Severe psychiatric disorder. Over reaction to mild or threatened discipline. Fixedly follows the movements of adults. Irritability.	Maladapted. Deliquency. A repressed personality. Indifference to affection. Aggressive, disruptive and destructive behavior. Shy, passive, withdrawn.

The abused child is often passing under the diagnosis of brain damaged, cerebral palsied, learning disabled, mentally retarded or emotionally disturbed. The cause of the child's problem is given as unknown. Six thousand children are permanently brain damaged from child abuse each year. A history of skull fracture and subdural hematoma is found four times more frequently in the retarded than in the normal child. A child's aggressive, disruptive and destructive behavior may be a cry for help and attention or the child may be imitating the behavior of a parent or parents as a way of solving problems. If the child is withdrawn or passive she or he has turned the problem inward instead of outward. The world is a hostile, unloving place from which the child wants to withdraw. In all three forms -- 1) brain damage, 2) emotional disturbance turned outward or 3) emotional disturbance turned inward child abuse can lead to mental retardation, functional mental retardation or mild or severe learning problems. As the child matures he or she may continue the cycle of abuse by being abusive parents or to avenge their hurt turn against the world which has been so "hurtful" to them or withdraw from the world into an institution.

Mental Retardation From Child Abuse Can Be Prevented

PREVENTION TECHNIQUE #1. *EIGHTY PERCENT OF CHILD ABUSERS CAN BE HELPED, THEY NEED ONLY ASK.*

When a parent can answer yes to any of the following questions it is time for that parent to seek help.

1. Does your child seem very difficult to care for?
2. Is your child ungratifying either emotionally or physically?
3. Are you apathetic about your child?
4. Do you show little concern for your child's health, nutrition or childhood experiences?
5. Do you count the minutes until you can get away from your child?
6. Do you dislike your child?
7. Do you dislike touching your child?
8. Does your child's crying upset you?
9. Are you disappointed in your child's behavior?
10. Are you disappointed in your child's development?
11. Do you feel that your child is deliberately trying to hurt or upset you?
12. Do you worry that your neighbors might disapprove of the way you raise your children?
13. Are you afraid to discipline your child because you may lose control?

14. Do you have an impulse to shame or hurt your child?
15. Do you hurt your child repeatedly?
16. Do you feel guilty because you are not happy or satisfied being a parent?

There is help if a parent answers yes to one or more of these questions.

"Help for Child Abusers"

1. Organizations offer help:

   a. Parents Anonymous
      (Many cities have local chapters)
      250 W. 57th Street, Room 1901
      New York, New York 10019

This is a nation-wide self-help organization that works to stop the child abuse cycle with meetings, hotlines, mutual support programs, newsletters and information services. The Daily Goals and Guidelines of the New York Parent's Anonymous gives a feel for the philosophy of this group.

Parents Anonymous of New York

Daily Goals and Guidelines

1. We recognize and admit to each other that child abuse and neglect - be it physical, verbal, sexual, or emotional, exists in our homes.
2. We admit that our children are defenseless and that the problem is within us as parents, and we will set about an immediate course of action to correct it by changing our daily habits.
3. We want and will accept help for ourselves and will follow any path to get the strength, the courage, and the control that we must have in order to stop abusing our children.
4. We will not blame our children or subject them to our abusive actions.
5. We promise to ourselves and our family that we will use to the fullest extent, the Parents Anonymous program.
6. We will take one step, one day at a time, to achieve our goals.
7. We admit we must learn to control our tempers, and once this is accomplished, we can achieve harmony in our home and earn love and respect for ourselves and our family.
8. We understand that our problem cannot be cured immediately and demands continuous practice of the Parents Anonymous program.
9. We remain anonymous, but if we wish to individually, we may identify ourselves and will call upon other Parents Anonymous members, or seek any help before, during, or after any act of child abuse occurs.
10. We admit that we are separating ourselves from our children, and through daily practicing the Parents Anonymous program we will reunite our children into a loving, healthy, family unit.

*Used with permission from Parents Anonymous of New York.

   b. Children's Division of the American Humane Association
      This is a federation of individuals and groups working to prevent abuse. They conduct public education, research and information gathering activities.

   c. National Committee for The Prevention of Child Abuse
      836 W. Wellington Ave.
      Chicago, Illinois

   d. Families
      CIC Dept. 6426
      Pueblo, Colorado 81009

   e. The Big Brothers Program offers help to parents who are abusers in some communities.

2. Parents can improve their parenting skills by taking parenting, behavior management, first aid, prepared parenthood and infant and child care classes offered in their community.
3. Parents who are abusers should talk to someone - a friend or professional. They should get a sitter or leave their child at a friend, nursery or child care center and get away from the house and children to do something special.
4. Parents should have times for themselves and for their own interest.
5. The mother and father should both take responsibility for raising a child both in terms of time and nurturing.
6. Parents should do everything possible to have a healthy, normal child if they are going to have children.

PREVENTION TECHNIQUE #2. *VIOLENCE AS A WAY OF SOLVING PROBLEMS SHOULD BE STOPPED.*

As Dr. John Valusek says so well, "People are Not for Hitting" and children are people. Dr. Karl Menninger states that "Children attacked by any method are likely to carry the seeds of revenge all their lives and plant them in unexpected places to produce strange fruit."

Child abuse is a symptom of violence. Children can be made to stop a particular behavior by physical punishment but the long term effects are not good.

People acquire their basic knowledge of how to act as parents from their first three years of life. Such learnings become part of the subconscious. They also learn how to solve conflict and problems. If no one ever learned how to strike, molest, strangle, burn, fracture and starve it would be unlikely that anyone would ever abuse or kill a child except by valid accident. Violence is an inheritance from our forefathers passed on as an acceptable way to solve problems, conflicts and stop undesirable behaviors. Children learn by imitation. It is one of their primary mechanisms for learning. Children who are hit become hitting adults. Violence begins and ends at home.

PREVENTION TECHNIQUE #3. *ADULTS HAVE A MORAL AND LEGAL OBLIGATION TO REPORT CHILD ABUSE.*

If a person observes a child whose condition or situation appears to be the result of abuse or neglect they should contact the Department of Public Welfare, Juvenile Aid Division. It is required by Indiana Law. If the child is in immediate danger the police department should also be called. The identity of the reporter will remain confidential and will not be given to the child's family.

When adults take the responsibility of reporting child abuse:

1. A report is filed.
2. The child's condition is checked.
3. Necessary services are provided for the family and child.
4. The child is put in the custody of the Welfare Department if the child is at high risk of re-injury.

PREVENTION TECHNIQUE #4. *PARENTING CLASSES SHOULD BE A PART OF EVERY CHILD'S EDUCATION IN PUBLIC AND PRIVATE SCHOOLS.*

Ninety-five percent of people live in a family context. All have come from a mother and father! Raising children which consumes vast investments of time, energy, expertise and love is a skill that most parents have little or no preparation for. Today's family is smaller than a generation ago allowing fewer opportunities for a child to practice "parent skills" caring for a brother or sister. Teenagers work outside the home in ever increasing numbers contributing and learning little towards parenting. Being parents could be a much more successful experience both for parents and child if parents were well prepared for this important aspect of life.

Another Person in the Child's Environment - The Baby Sitter

Both the child doing the baby-sitting and the child he or she is taking care of are of concern in the prevention of childhood accidents. Putting a child's safety and care in the hands of another person is a task which should be done with care and consideration. Too often parents take that step with little thought as to whom they are leaving their child with.

A sitter should be capable of maintaining safety and protection for both him or herself and the child in their care. The parent substitute should above all else be a person with a sense of responsibility and some experience with children. The reliable baby sitter should also know what to do in case of an emergency, like children and be liked by children. The sitter should be given:

1. Emergency Telephone Numbers
   In a form such as that given on page 261, ditto master 60.
2. Emergency First-Aid Procedures
   A book such as "A Sigh of Relief" produced by Martin Green or emergency procedures outline on pages 225 through 229 on ditto masters 85 through 92.
3. The name, address and phone number of where the parents will be and what time they will return.
4. A tour of the house to point out hazards that attract the child they will care for as well as where necessities such as the phone, doors to be locked, emergency medical supplies, fire escape routes and special equipment and supplies for the child are located.
5. Guidelines that parents expect the sitter to follow such as:
   a. Never leave the child alone.
   b. Check on the child every half hour when the child is asleep.
   c. Stay awake and keep radio or T.V. turned down low.
   d. No guests except at the parent's approval.
   e. Keep doors and windows locked.
   f. Allow no one in on any pretense.
   g. Take telephone messages without identifying themselves as a sitter.

The sitter should always be driven or walked home.

PROTECTION FROM THE ENVIRONMENT - SPECIAL EQUIPMENT BOUGHT JUST FOR THE CHILD

The parent cannot assume that all products marketed for children are safe, well made and designed for the safety of the child in mind. The law of supply and demand and free enterprise allow many products to "hit-the-market" that can cause death or physical or mental disabilities in children. Head injuries and suffocation are common accidents resulting from unsafe or unsafely used equipment for children. Parents must be educated and wise consumers in preparing the child's environment.

... There are 9,000 crib related injuries treated in hospital emergency rooms each year. Two hundred infants die every year in accidents involving cribs.

... 7,000 injuries associated with high chairs are treated in hospital emergency rooms each year.

... There are 1,000 injuries related to baby carriers treated in hospital emergency rooms each year.

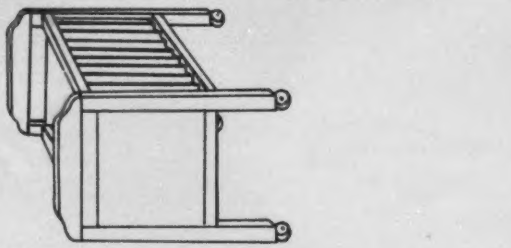
... Every year 1,000 children under five years of age are killed in automobiles and many more are permanently disabled. 93% of all children do not ride "buckled up" and another 1% are restrained by inadequate or unsafe belts or seats.

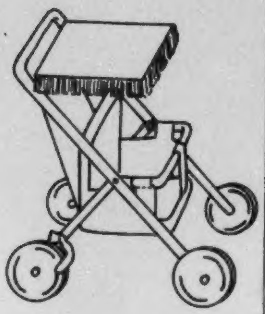
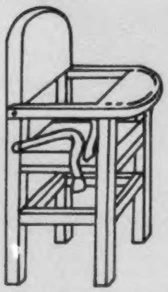
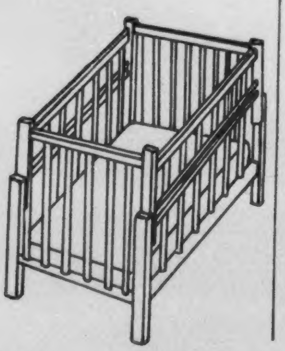
... 72% of adults concerned with children don't know the do's and dont's of child equipment purchasing and use.

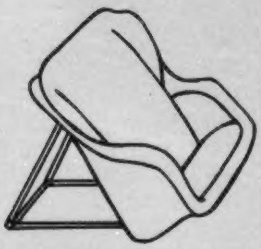
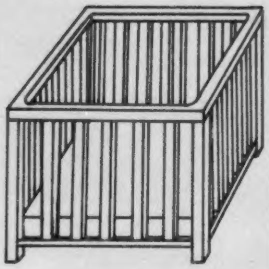
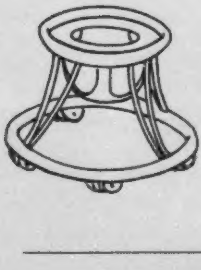
... 52% of children do not know the potential dangers of child nursery equipment yet 37% of these children baby-sit for children under 3 years of age.

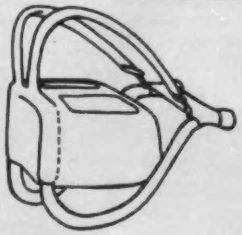
Many of these accidents are preventable, subsequently preventing head injuries and suffocation which results in lack of oxygen to the brain, if children's equipment was purchased by an educated consumer and used in a safe way. The U.S. Consumer Product Safety Commission gives hazards, safety features and suggestions for supervision and use of baby equipment. These are the essentials in consumer knowledge that every parent-to-be should learn and use.

Figure 47. Hazards, Safety Features and Supervision and Use of Infant Equipment Summarized by the U.S. Consumer Product Safety Commission.
*Others

Equipment	Hazards	Safety Features*	Supervision and Use
Standard Size Cribs 	1. *Plastic wrapping on mattresses.* 2. *Mattresses too small for crib; baby can get stuck between mattress and sides and suffocate.* 3. *Crib slats too far apart; baby could wriggle through, his head become stuck, and strangle.* 4. *Crib so small baby can climb out.* 5. *Large toys, objects or bumper pads baby can climb on and fall out.*	1. No more than 2-3/8 inches between slats (about 3 adult fingers width.) 2. Snug fitting mattress. If you can fit 2 adult fingers between mattress and sides, the mattress is too small. 3. Crib sides which lock at maximum height. (*20 inches) 4. No rough edges or exposed bolts. 5. Safe materials;e.g., nonlead paint (particularly important with older or used equipment.) 6. Latching device which cannot be released easily. *If there are allergies in the family consider purchasing a hypoallergenic mattress. *There should be no ledges for the child to climb up on in the crib.	1. Check latches to make sure they are secure. 2. Check slats on side rail for closeness and install bumper pads if too far apart. 3. If there is too much space between mattress and sides and you cannot replace it, stuff toweling between sides and mattress. 4. Check baby's standing height on mattress against side rail; if height of rail is less than 3/4 child's height when the mattress is in the lowest position, obtain a larger crib, or graduate the baby to a regular bed. 5. Remove large toys or any objects the baby might stack or use for climbing. 6. If dangling toys are left hanging from crib sides, make sure cord is not long enough to wrap around baby's neck (less than 12 inches.)

		*Decorations on the crib should not be small enough to inhale or eat. *The side release mechanism should have a 2-kick release.	*Some sources recommend using bumper pads when the infant is very small. *Never use plastic bags to cover a crib mattress. The plastic sticks to the nose and causes suffocation.
Strollers and Carriages 	*1. Inadequate or faulty brakes.* *2. Latches which don't hold securely.* *3. Sharp edges or exposed hardware; dangerous scissor-like mechanism.* *4. Canopy which doesn't lock firmly in place.*	1. Stroller should not tip over with child as far back as possible in it; test reclining back. 2. Firm, vertical or nearly vertical back rest. 3. Firmly attached safety belt. 4. Tightly locking brakes; a two-wheel brake provides extra security. 5. Wide base and wheels with large diameters. 6. Canopy which locks in forward horizontal position and rotates to downward position in rear. 7. Shopping basket should be mounted in front of- or centered over-rear axle for stability. *A harness is preferrable to a safety belt if it is easy to use.	1. Check brakes before taking baby for a ride; use them when stroller is not in motion. 2. Make sure baby is safely strapped in. 3. Watch baby at all times; don't leave infant unattended. 4. If stroller or carriage is collapsible, check latch devices for security. 5. Don't allow other children to pull or stand in (or on) the shopping basket.
High Chairs 	*1. Unstable chairs which baby can tip over.* *2. Trays which baby can unlatch by pushing against.* *3. Seat belts attached to tray instead of chair.* *4. Chairs left in path of opening doors, refrigerator doors, range, or other kitchen equipment.* *5. Rough or sharp edges on points.*	1. Wide, stable base. 2. No sharp or rough edges or sharp points. 3. Restraining straps sturdy and attached securely to chair itself. 4. Tray which locks securely. *A low table chair is much safer but the child cannot be as much a part of the family group and misses out on stimulation.	1. Be sure child is strapped in securely whenever he is in chair; never use tray by itself as restrainer without straps. Even if baby is sitting at the table without the tray, the straps should be used. *Never leave the child in a high chair alone.
Non Standard Size Cribs 	*1. Plastic wrapping on mattress.* *2. Mattresses too small for crib; baby can get stuck between mattress and sides and suffocate.* *3. Crib slats too far apart; baby could wriggle through, his head become stuck, and strangle.* *4. Crib so small baby can climb out.* *5. Large toys, objects or bumper pads baby can climb on and fall out.*	1. No more than 2-3/8 inches between slats (about 3 adult fingers width). 2. Snug fitting mattress. If you can fit 2 adult fingers between mattress and sides, the mattress is too small. 3. Crib sides which lock at maximum height. 4. No rough edges or exposed bolts. 5. Safe materials; e.g., nonlead paint (particularly important with older or used equipment).	1. Check latches to make sure they are secure. 2. Check slats on side rail for closeness and install bumper pads if too far apart. 3. If there is too much space between mattress and sides and you cannot replace it, stuff toweling between sides and mattress. 4. Check baby's standing height on mattress against side rail; if height of rail is less than 3/4 child's height when the mattress is in the lowest position, obtain a larger crib, or graduate the baby to a regular bed.

		6. Latching device which cannot be released easily.	5. Remove large toys or any objects the baby might stack or use for climbing. 6. If dangling toys are left hanging from crib sides, make sure cord is not long enough to wrap around baby's neck (less than 12 inches).
Baby Carriers 	*1. Narrow base, slippery bottom surface.* *2. Placing carrier on slippery or high surface.* *3. Supporting devices on back which may collapse.* *4. No safety straps.*	1. Sturdy materials and wide, stable base. 2. Safety strap. 3. Nonskid bottom surface. 4. Supporting device which locks firmly in place. *Models costing under $5.00 are unsafe. This type of carrier has wire supports which are flimsy and unsafe.	1. Always stay with baby. 2. Always use safety straps. 3. If bottom is slippery, attached rough surfaced adhesive strips. 4. When using carrier on high surfaces, make sure the child is within arm's reach and out of reach of dangerous objects. 5. Use the carrier only as intended-it is not a car seat. 6. Check supporting device to make sure it is firmly in place.
Playpens 	*1. Too small a playpen for a growing child; baby shouldn't be able to crawl over the side or cause pen to tip over by leaning his weight against it.* *2. Mesh playpens with large open weave which child can use as toe-hold for climbing.* *3. Netting with weave large enough for buttons on baby's clothing to get caught.* *4. Protruding bolts, rough edges.* *5. Hinges which don't lock tightly.* *6. Large toys which can be used for climbing left in playpen.* *7. Slats which are loose or more than 2-3/8 inches apart.* *8. Weak floors; no padding on floor.*	1. Mesh netting with a very small weave smaller than tiny baby buttons. 2. Slats no more than 2-3/8 inches apart. 3. Firm floors with a foam pad. 4. Hinges that lock	1. Bring playpen indoors after use outdoors. Rain water, and sun can damage it. 2. If slats are placed too far apart, interweave sheeting among them and fasten securely. 3. Remove large toys, bumper pads, boxes, or any objects which could be stacked and used for climbing. 4. If toys are hung from sides, be sure cord is short enough not to wrap around baby's neck-no more than 12 inches long. 5. Keep an eye on baby; be aware of what baby is doing.
Baby Walkers 	*1. Tipping over when the baby is maneuvering over thresholds or throw rugs or when leaning,' running, or reaching in the walker.* *2. Finger entrapment in the older x-frame walkers when the walker partially collapses.* *3. Falling down stairs when baby is unsupervised and stairs are unguarded.*	1. Stability-wheel base should be wider and longer than frame of walker. 2. Sturdy materials; unbreakable plastic or tough fabric seats with heavy-duty stitching or large rugged snaps. 3. Protective covers over coil springs and hinges, no sharp points, exposed screws.	1. Remain with baby while he/she is using the walker. 2. Prevent the child from running or leaning too far. 3. Make sure throw rugs are removed and stairs blocked. Help the baby maneuver over thresholds.

Back Carriers 	*1. Using frame back carriers too soon-baby should be 4-5 months old, and able to hold head up.* *2. Unpadded frames near baby's face and head.* *3. Jolts to baby's neck.* *4. Baby slipping out of carrier.* *5. Joints that accidentally close and pinch.*	1. Padded covering over frame near baby's face. 2. Leg openings small enough to prevent baby from slipping out. 3. Leg openings big enough to avoid chafing baby's legs. 4. Look for strong stitching or large, heavy-duty snaps to prevent accidental release. 5. Seat belts.	1. Buy carrier to match baby's size and weight. 2. Always use restraining straps. 3. Be sure leg openings do not chafe baby's legs. 4. When leaning or stooping, bend from the knees to minimize chance of baby falling out. 5. Avoid sharp points, edges, and rough surfaces. 6. Avoid joints that can accidentally close and pinch or cut the baby.

*Used by permission of the U.S. Consumer Product Safety Commission.

Other Childhood Equipment:

BUNK BEDS

Safety features:
1. Construction should have rounded edges.
2. The mattress should be tightly fitting.
3. The ladder should tightly grip the bed and not slip when it is climbed.
4. The guard rail should secure tightly and the opening should not be small enough to let the child slip through.

Use:
1. The bed should be placed in a corner so one wall can serve as the guard rail.
2. The guard rail should be tightly secured.
3. A young child should not sleep in the top bunk.
4. No rough play should be allowed in bunk beds.
5. Bunk beds should be kept in good repair.

BICYCLE CARRIERS FOR YOUNG CHILDREN

Safety features:
1. Should be designed to protect the feet and hands.
2. A safety belt should be sturdy and fit across the hips.
3. Overall construction should be rugged and mechanically sound.

Use:
1. Infants under 6 months of age should not be a passenger on a bike. Even a minor fall can seriously damage the infant's soft head.
2. The adults riding a bicycle carrying a child in a seat or back carrier should be an expert rider.
3. Babies from 6 to 12 months should be carried in a back carrier by the rider.

Car Seats and Belts

A WELL-MADE INFANT CAR CARRIER IS AS IMPORTANT AS A CHILD'S IMMUNIZATION!

Why such a strong statement?

... Motor-vehicle crashes have accounted for 2.1 million deaths in the United States. This is 2 times the number of U.S. military personnel lost in all the wars and in all major disease epidemics in our history.

... Only heart disease, cancer and stroke cause more deaths than automobile accidents.

... Automobile accidents are the number one cause of death among children, claiming more lives than drowning, poisoning and childhood illness.

... In 1978 approximately 25,000 children from birth to 18 died in auto accidents in the United States.

... Every year 1,000 children under 5 are killed in automobiles, many more are permanently disabled.

... Of the tens of thousands injured in automobile accidents many remain permanently handicapped.

... Approximately 50% of all spinal cord injuries are caused by traffic accidents.

... The incidence of mental retardation is rising and automobile injuries is one of the largest contributors to this rise.

... No more than 25% of riders in U.S. use seat belts. 93% of children are not riding buckled up. Another 10% of children are restrained by inadequate or unsafe devices.

... More than half the children seriously injured or killed in car accidents in the U.S. were not in a restraint system.

*** Since the 55 mile per hour speed limit was established and safety design in cars and restraint systems has increased the number of motor-vehicle fatalities per year decreased.

1972	56,278	automobile fatalities per year
1976	46,000	automobile fatalities per year

By 1982 all cars will have passive restraint systems in the front seat.

*** 30-90% fewer fatalities and injuries for those using seat belts have been reported.

*** Approximately 75% fewer fatalities occur when the lap and shoulder belt are used while there are 50% fewer fatalities when lap belts only are used.

*** In the State of Tennessee parents are now required to secure children in automobiles if they are under 4 years of age. This is the first law of its kind in the United States although 23 other countries have such laws. The law has increased child restraint system use by 8 to 16% in Tennessee.

The Vulnerable Child. A child is not a miniature adult. The head of a child is much heavier and larger in proportion to its body than an adult's. The head mass of a child is larger in proportion to their body and lower extremity length, making the center of gravity higher in the child than in the adult so the top-heavy child "leads with the head" when thrown from their seat in a collision. Facial and head injuries are more frequent and more serious as the child strikes the car. The child's head is supported on neck muscles which are much weaker than an adult's making the child vulnerable to whiplash. The less developed small intestine of the child does not allow for snug anchorage of lap belts.

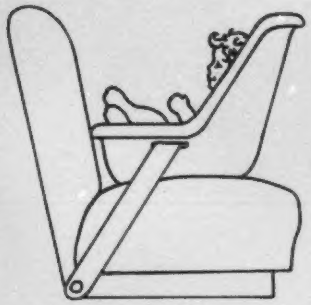
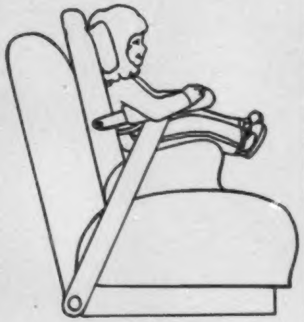
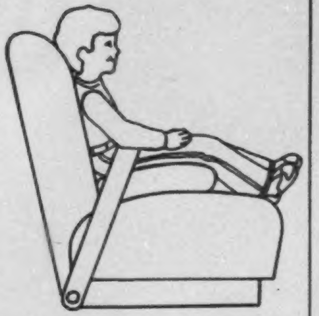
In an accident the first collision is that of the car with a stationary object. The second collision is a human collision. There are 3 common patterns; 1) being thrown from the car, 2) impacting with the interior of the car and 3) the collapse of the car on the individual. Numbers 1 and 2 can be prevented by using a proper restraint system . . . staying in the car and decelerating with it. At 20 miles per hour a 30 pound child becomes like a 600 pound mass slamming into the dashboard. At even a 20 mile per hour collision a 15 pound baby would be torn from the strongest arms and flung with a force of 300 pounds. Small children require special restraining devices because of their underdeveloped and unique physical structure.

A Note of Caution. Restraint systems that come as standard equipment in new cars are not suitable for children under 4 years of age or for those weighing less than 40 pounds. A lap belt can cause internal injuries. A child can slip through or under a lap belt in a crash or sudden stop. Diagonal belts are not suitable for young children. The diagonal restraint can position itself across the child's face or neck.

Children Need a Restraint Specifically Designed for Them. In general their restraint system should:

1. Distribute the pressure on the body over the largest possible area.
2. Provide good support for the head.
3. The head and body should be cushioned.
4. Be secured by a standard lap belt through or around the child restraint or anchored directly to the floor of the vehicle.
5. The child should face backward or sideways. (small infant)
6. The child should be in an upright or semi-upright position secured with a harness which should have a strap at the base of the seat to position between the child's legs.
7. The type of restraint system should be related to the age and weight of the child. Figure 48 summarizes matching the restraint system to the child.

Figure 48. Restraint Systems Matched to the Weight and Age of the Child.

Type of Restraint	Weight or Age of Child	Guidelines
Infant Seat 	Newborn to about 20 pounds	The infant faces rear or sideways in a semi-upright position secured with a harness or a shield. The carrier is held down by a lap belt. The seat is well padded and firmly constructed. May have top anchor. *Car beds are unsafe.
Child Seat 	Child from 20 to about 50 pounds	A well padded seat secured with lap belt 1½" wide. A shield or harness is used to restrain the child. The harness should have a crotch strap. If the seat belt touches the child raised sides should prevent the belt from pressing on the child. May have top anchor.
Seat Belt 	Older and larger children over 40 pounds.	Belt should buckle firmly against hips not the abdomen. Use a hard cushion under the child to keep the belt low enough. If the child is over 4½ ft. tall use diagonal strap. A harness with a seat belt may also be used at this age. A label must state the harness must comply with motor vehicle standard 209, Type 3.

Current Information. A few years ago parents could use the excuse that good restraint systems were not available. Today there are more than 20 different models that meet crash-testing standards. Devices marked "meeting standard No. 213" do not necessarily give effective crash protection. The best thing for a parent to do is to get current information about restraint systems from

Physicians for Automotive Safety
50 Union Avenue
Irvington, New Jersey 07011.

For 25¢ this group will send a detailed list of the comparative merits of restraining devices.

Specific Recommendations. Figure 49 summarizes some of the recommended restraint systems by 3 different groups.

Figure 49. Car Seats Recommended by Action for Child Transportation Safety, The American Academy of Pediatrics and Physicians for Automotive Safety.

Action For Child Safety	American Academy of Pediatrics	Physicians for Automotive Safety
Bobby-Mac 2-in-1	G.M. Infant Carrier	G.M. Love Seat
Bobby-Mac Deluxe	G.M. Infant Love Seat	Bobby-Mac
Kantwet Car Seat #986, 988	Bobby-Mac 3-in-1 babychair #4810	Peterson Safety Shell with Infant Insert
Dyn-O-Mite #440	Peterson 74	Bunny Bear Sweetheart IIQN97
Infant Love Seat	G.M. Love Seat	Kantwet Car Seat 784/884
Safety Shell	Bobby-Mac 3-in-1	Teddy Tot Astro-seat V
Safe & Easy	Peterson 74	Century Moter Toter
Sweetheart II	Ford Tot Guard	Questor Infant-seat Auto Restraint Harness
Travel-L-Guard		Ford Tot Guard
Travel-L-Ette		Guardwell
Wee Care #597		

Some Necessities.

- Whichever device is selected it must be correctly installed and correctly used.
- If the seat is designed with a top anchor it must be used for in a crash the seat would tip forward slamming the child into the dashboard.
- Restraint systems must be used 100% of the time.
- Restraining a child should begin with the ride home from the hospital. After that the car "does not move" unless everyone is buckled in. If a child is accustomed to a restraint system he or she will continue to accept it.
- Everyone must be restrained to keep them from becoming flying objects which can easily crush a child.
- Two children or an adult and a child should never be buckled into one belt. The heavier can crush the lighter one.
- If a safety belt must be used under age four or under 40 pounds because nothing else is available the risk of injury can be reduced by using a small pillow between the seat belt and child and they should be buckled snugly over the hips.

School Buses. The carriers of millions of children each day often do not meet minimal collision safety standards. Parents should encourage school boards to purchase buses that have...

... seat backs 28 inches high
... more emergency exits
... padded seat backs
... seat belts.

Toys

No parent would purposely buy their child a toy which could harm the child. Every year 5,000 new toys enter the market place and as with children's equipment the free enterprise system allows toys to reach the market which are not in the best interest of the child but in the best interest of the manufacturer's pocketbook. In 1974 150,000 children received hospital emergency room treatment for injuries associated with toys from falls, swallowing toys or parts of toys, exploding parts, flammable materials and sharp edges. The U.S. Consumer Products Safety Commission has banned over 1,800 toys. However many parents are unaware of the hazards of some toys. Toys which can cause head injury or cut off the brain's supply of oxygen from strangulation or suffocation are the focus of attention in this unit.

General Guidelines for Parents in Buying Toys for Their Children.

- Toys should be suited to the child's age, interest and skill.
- Labels for age should be followed. Labels for toxicity and hygiene should be considered. Labels for Underwriter Laboratories Certification of electrical toys should be present.

- Electrical toys should not be purchased for children under 8.
- Toys should be of quality design and construction avoiding the obvious hazards of sharp edges and points. Small parts, tiny toys or toys with small removable parts should be avoided.
- Play should be supervised especially until the child has "learned how to play" with the toy and its limitations and restrictions.
- The wrappings of toys should be discarded. Plastic packaging of the thin, flexible kind should be knotted and put in an outside garbage can.
- Broken toys should be repaired or thrown away.

Figure 50 illustrates the great variety of toys which may be unsafe for children causing head injuries or cutting off oxygen to the brain.

Figure 50. Toys That Can Lead to Childhood Accidents Resulting in Brain Damage.

Toys Which Can Cause Head Injury	Toys Which Can Interfere With The Oxygen Supply To The Brain
SMALL RIDING TOYS which are unstable and poorly balanced. *HEAVY TOYS* which are too much for the child to handle. *HEAVY THROWING TOYS* such as boomerangs *FIREWORKS* or any toy containing explosives. *SWINGS* with metal or wooden seats. *TRICYCLES* which are poorly designed or too big for the child. *BICYCLES* which are too big for the child, poorly designed or of too advance design for the child. Bicycles rank as #1 with the Consumer Product Safety Commission as a dangerous household item. (There are nearly 500,000 bicycle accidents a year.) *SKATEBOARDS* and *ROLLER SKATES* particularly without a helmet. *MINIBIKES, MOPEDS, SCOOTERS, MOTORCYCLES* and *SNOWMOBILES*	*BABY RATTLES* which are small enough to fit into the baby's mouth or "leak" small rattles or have ends or parts which can be jammed down the infant's throat. *TOYS SMALLER THAN 1¼ INCHES X 2¼ INCHES* can be swallowed, inhaled or choked on by an infant. Marbles, beads, coins, etc. *SQUEAK TOYS* in which the squeaker can be removed. *STRING TOYS* with strings longer than 12 inches are dangerous for children under two as are cords on pacifiers. *STUFFED ANIMALS OR DOLLS* with eyes, pins, buttons, wires or pellets which come loose and could be swallowed. *LEAD BASE PAINTED TOYS.* *FLAMMABLE TOYS.* *SPONGE OR RUBBER TOYS* which can be nibbled breaking off small pieces. *BRITTLE PLASTIC TOYS* which can break and small pieces which can be swallowed. *ELECTRICAL TOYS* not under Underwriter Laboratories Certification. *KITES* flown near power lines, T.V. or radio antennas or one using metal string or construction.

The Bureau of Product Safety, an agency of The Department of Health, Education and Welfare inspects toys and infant equipment to evaluate their safety. If a product is found to be unsafe it must be removed from the market. If a parent finds a toy or equipment which is a hazard or causes an injury because of its design or quality the commission should be called or written.

U.S. Consumer Product Safety Commission
Washington, D.C. 20207
Toll free number 800-638-8326

Sports Equipment

Both the American Association of Health, Physical Education and Recreation and The Society of State Directors of Health, Physical Education and Recreation state that "unless a school or community can provide exemplary supervision-medical and educational-it should not undertake a program of competitive sports, especially collision sports, at the pre adolescent level." To avoid serious head injuries in their children this is a good stand for parents to take.

In team sports played by their child or children parents should make sure that

... children are grouped by weight, skill and physical maturity.
... children are "in condition" before competing.
... children are coached and supervised by a person who puts the safety of children above winning.
... children are protected with appropriate equipment.
... children are participating in team sports where the equipment and facilities are good.
... children have adequate medical and supervisory care.
... children are in good physical condition before participating in team sports.
... stimulants or other drugs are not used to make "better" athletes. The use of drugs in sports can cause psychological dependency and can have harmful effects on the growth and development of the adolescent.

PROTECTION FROM THE ENVIRONMENT - COMMON HOUSEHOLD DANGERS

There are a number of common household hazards-both inside the child's house and outside the child's house-that may often be a part of the child's environment but are not a part of the environment specifically prepared for her or him. The common household hazards which can lead to mental retardation or learning problems are the concern of this unit.

COMMON HOUSEHOLD DANGER #1 - *ALLERGENS*

The allergy mechanism and how it can result in mental retardation can be reviewed in the unit on The Mother and Father and Their Role as Dietitian starting on page 46

Allergic Reactions to Drugs. Such a reaction can occur within hours or not until days after a child has been given a drug. A reaction usually starts 5 to 7 days after the child has stopped taking a drug. A reaction may begin with a bright red rash of raised skin with a clearing in the center. Bruises or small hemorrhages may be present in the rash. If the rash is more severe large blisters may develop turning into open sores with hemorrhages in the skin. Other reactions may be itching, hives, swelling of the joints and difficulty in breathing with a fever and inflammation of internal organs.

Drugs that may cause allergic reactions are

- prescribed drugs
- injections
- immunizations
- vitamins
- tonics

- eye and eardrops
- nasal sprays
- tooth paste
- skin lotion

- aspirin
- laxatives
- sedatives
- preservatives
- food additives
- food mold

A drug reaction is a medical emergency and the child needs immediate medical attention. Also the child should wear a bracelet or necklace which gives his or her drug allergy information. A second reaction may be more severe.

Medic Alert Foundation
P.O. Box 1009
Turlock, California 95380

sells medic alert tags and also keeps information on the child's drug allergy on file at a central location and their telephone exchange is open 24 hours a day.

Allergic Reaction To Household Irritants. The list of household irritants to which a child may have an allergic reaction, asthma or an allergy is endless.

- house dust
- mold

- tobacco
- smoke
- aerosols
- chemical vapor

- fur, feathers, wool, kapok
- any fur or feathered animal

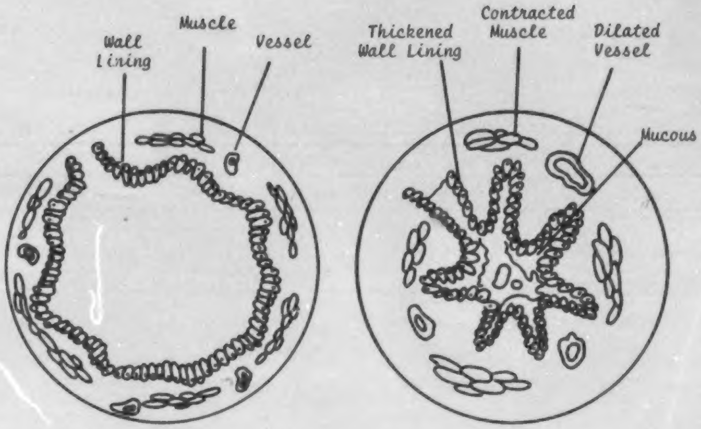
- perfume
- soap

- weeds, grass, tree pollen

An asthmatic child will react to one or more of these allergens with labored breathing, wheezing and blueness of the finger tips and lips if the reaction is severe. Asthma results in a decrease of the diameter of the airway which results in a wheezing or whistling respiration. The muscles of the bronchial tubes tighten, the tissues lining the air tubes swell and there is a decrease in the amount and thickness of the secretion within the air tubes. Infections, emotional stress, heat and cold and atmospheric conditions can make asthma or an allergy more severe.

Figure 51 illustrates the reduction of the airway in an asthmatic attack.

Figure 51. The Normal and Asthmatic Airway.



To prevent or reduce allergic reactions to household irritants parents can

1. Use a humidifier except in the basement.
2. Air condition the house.
3. Keep the house very clean.
4. Use a dehumidifier in the basement.
5. Not buy pets if they are an irritant.
6. Use synthetic mattress, pillow and blanket in the child's bedroom.
7. Make sure the carpets and pads are synthetic.
8. Limit stuffed animals especially those filled with Kapok and stuffed furniture.
9. Have radiant heating if possible.

A child may be given hyposensitization injections to build up their tolerance for a particular allergen. Any severe reaction to a household irritant should be treated as a medical emergency. A Parent's Guide to Allergy in Children (by Dr. Claude A. Frazier, Garden City, New York: Doubleday, 1973) is a good resource for parents of allergic children.

Allergic Reactions to Insect Bites or Stings. Each year 50 to 100 people die from insect stings. More people are killed in the United States each year by
- bees
- wasps
- hornets
- yellow jackets
- harvest ants
and
- fire ants

than by any other venomous creature - even poisonous snakes. As many as 4 individuals in each 1000 may be allergic to one of these insects.

An insect allergy is when exposure to an insect brings about allergic symptoms. A variety of reactions may occur according to the type of insect, the amount of venom injected into the child, the particular allergy of the child and the site of the sting. Young children often react more intensely than adults who develop immunity over the years to insect substances. Swelling and redness at the site of the bite does not constitute an allergic reaction but if after one or two hours following a bite or bites there is increasing redness and swelling and/or

- a fever or warm skin
- flushed skin
- itching
- hives or rash
- fainting
- wheezing
- weakness

- dizziness
- nausea, abdominal cramps
- difficulty in breathing,

the child should be taken to the doctor or hospital immediately. Any one of these signs constitutes a medical emergency. The shorter the time between a sting and the start of symptoms the more severe the reaction may be. Before or while taking the child for medical care the parents should give first aid for insect stings given in the last section of this unit under Emergency Procedures.

Parents of a child who is allergic to insect bites should take the following preventive measures:

1. The child can be desensitized to reduce or prevent future allergic reactions. A diluted allergen (substance to which the child is allergic, insect extract) is given 1 or 2 times a week. This builds up bodies which protect or block the antibody (Immunoglobulin G) by attaching to the allergen before it can attach to the Immunoglobulin E on the cell surface. Once the child can tolerate a strong dose that dose must be repeated once a month.

2. The child should avoid situations which are high risk for getting stung.

3. The child should not wear bright, flowery clothing, scented lotions-soaps-shampoos.

4. The child should wear protective clothing in high risk situations.

5. An insecticide should be kept in the car.

6. The child should wear a Medic Alert tag.

7. The home, school and car of the child should have an "Emergency Insect Kit" with epinephrine (adrenalin) in a syringe, antihistamine tablets, a tourniquet, alcohol swabs and instructions.

COMMON HOUSEHOLD DANGER #2 - *POISONING*

1. Lead Poisoning

The poison which heads the list in causing mental retardation is lead. Polio and measles have virtually been wiped out but lead poisoning still stands as a major childhood problem. This "man made disease" exists in epidemic proportions in many cities but also exists in suburban areas. Before the 1930's and 40's Lead Poisoning was just considered an acute disease in children. Then as now it is often misdiagnosed.

The toxicity of lead has been known for 2000 years and for the last 70 years lead poisoning has been known to be prevalent. There is no such thing as a "normal" blood-lead-level. It is a contaminate to the body which serves no function. Once it gets into the body much of it remains and deposits itself in the various body tissues. *LEAD IS NOT GOOD FOR THE BODY.* One gram of paint containing 40% lead is enough to kill a 2 year old child. In lesser amounts lead poisoning may not be immediately apparent. *HOWEVER LOWER LEAD INTAKES CAN RESULT IN MENTAL RETARDATION, HYPERACTIVITY, LEARNING DISABILITIES, CONVULSIVE DISORDERS, BLINDNESS, BRAIN DAMAGE AND MOTOR PROBLEMS.* But lead poisoning is screenable, diagnosable and treatable. It is also preventable.

"Some Statistics"

... In 1972 The Department of Health estimated that at any given time approximately 600,000 children have elevated blood-lead-levels resulting in 6,000 neurological handicaps, 200 deaths and 150 institutionalizations a year.

... The American Academy of Pediatrics estimates that 25% of children who have had lead poisoning are left with permanent central nervous system damage. Other estimates run as high as 40%.

... Children between 1 and 6 years of age are the main victims of lead poisoning. Those children between 1 and 3 years of age comprise 85-90% of those poisoned.

... Fifty percent of children between 1 and 3 years of age repeatedly ingest non-food substances often without their parent's knowledge that they are eating lead containing substances.

... Eighty-five percent of childhood lead poisoning is related to lead base paint ingestion.

... Lead poisoning is not necessarily limited to the poor. Testing in Baltimore and Philadelphia revealed that 50% of those children tested who had lead poisoning lived in non poverty areas.

... The percent of children sustaining permanent central nervous system damage is decreasing because of screening, diagnosing and treatment. In 1966 of those children with lead poisoning

38% became mentally retarded
54% developed convulsions
13% became cerebral palsied
6% had degeneration of eyesight
(as is indicated by the total percentage some developed more than one handicap)

In 1978 the percent of children sustaining permanent central nervous system damage from lead poisoning was 25% because more children are being screened, diagnosed and treated before the lead levels are high enough to manifest more severe symptoms.

"What are the Sources of Lead to the Growing Child?"

Figure 52 summarizes the sources, problems and prevention of lead poisoning.

Figure 52. The Sources, Related Problems and Prevention of Lead Poisoning.

Sources of Lead Poisoning	The Problem Emphasized	Related Prevention
1. *AIRBORNE LEAD* from lead gasoline automobile exhaust	One half of cars still use leaded gas and the U.S. produces 2 times as many cars as people a year. These cars produce 97% of the airborne lead pouring 200,000 tons of lead into the atmosphere each year. This lead has been entering our bodies since 1923 when lead was first added as an anti-knock component to gasoline.	Parents should work for stringent gasoline, anti-lead laws. Living near heavily traveled areas especially with children is not advisable.
Burning used oil and old batteries. Coal & heating oil combustion. Ashes and fumes from burning old houses.	The urban atmospheric lead is 5 to 50 times higher than non urban areas. It is especially high one to two miles from heavily traveled roads. Two thirds of Americans live on 90% of the U.S. land. Air pollution is a major problem in more than 300 cities and 7,000 communities. The air we breathe is only a "tiny" band of oxygen a little higher than our tallest mountain.	Children living in old housing should be tested once each year from 1 to 6 years of age for lead levels.
Dust and soil	As lead settles out of the atmosphere and houses crumble, are wrecked or burned they silently become part of the dust and soil.	Children should not be allowed to eat dirt or eat with dirty hands.

Industrial lead Battery manufacture Smelting Color pigment manufacture Brass founderies Bronze founderies Shipbuilding Automobile industry Lead bearing industry	Industrial lead use ranks fifth as a major metal used in industry. Pollution of the atmosphere and water are a major hazard. The danger to workers in the lead industry is very real.	It is not advisable to live near a smelting plant especially with children. Workers in the lead industry must take safety precautions to not "bring lead" home to their children.
2. *AGRICULTURAL LEAD* *from* Fungicides Insecticides		Wash fruits and vegetables thoroughly.
Other food sources:		
Oysters	Oysters or other shellfish which inhabit water that is high in lead content pass it on to the consumer.	Do not eat large quantities of one type of shellfish.
Evaporated Milk	The solder in the seams of cans of evaporated milk could increase the body level of a growing infant in a matter of weeks.	Evaporated milk should not be used for formulas.
Cider	The lead lining and joints in cider presses contaminates the cider.	
Moonshine	Most stills are made from old radiators. The lead in the soldered connections in rum stills contaminates the rum.	
Wine	Lead compounds are used for preserving wine.	
3. *HOUSEHOLD LEAD* *from* Lead base paint from walls, cribs and furniture Old plaster Chalking Putty Varnish Shellac	Some paint before 1960 contained lead as high as 1/2 its weight. Since 1960 there has been a legal limit on the percentage of lead allowed in paint, but 50-70% of old houses built before 1950 contain dangerous quantities of lead-containing-paint-and-plaster. In large cities of the east 80% of the houses in old industrial sections may have toxic interiors. Forty million housing units were built before 1950 and approximately 7.4 million people occupy housing units built before 1940 which are dilapidated and crumbling or are being renovated. Of the 14 pigments (colors for paint) manufactured in the United States 25% contain lead. By law the level of lead in paint may not exceed .06%. Paint chips taste sweet-like candy to children. Some children have Pica which means that they eat quantities of unedible substances sometimes without their parents knowing it. Thus the lead enters their body not only by air but in what they eat. In Los Angeles street sweepings tested for lead 3,000 micrograms were found. If a child were to inhale or eat 1/4 tsp. of this dirt they would be taking in 9 to 10 times the load which is considered "safe".	A single inspector using a portable x-ray device can inspect as many as 15 individual houses per day for lead hazard without damaging the surfaces of the house. After a house is repaired it should be screened again. This should be done on housing built before 1950. Chips of plaster & paint can be taken to the Board of Health for lead testing. Children should have good nutrition and be adequately supervised. Lead base paint should not be used. Any crumbling plaster or paint should be swept up immediately. Loose and blistering paint should be removed. Cracked or chewable surfaces

		should be covered with contact paper, cloth or heavy wallboard to prevent chips from falling.
Decorative leaded glass		
Lead plumbing	Soft water is more corrosive to lead plumbing. Some building codes still permit lead plumbing.	The plumbing should be replaced if it is lead.
4. *HOUSEHOLD OBJECTS CONTAINING LEAD* *from* Small metal objects: lead soldiers sinkers for fishing tinsel silver painted baby cups toothpaste & medicine tubes Other: pencils matches jewelry (beads painted to look like pearls) cosmetics cigarettes newsprint comic books		Parents should keep these household objects away from children who chew objects or put objects in their mouth.
ceramic dishes and cookware	Ceramics which are glazed with improperly formulated, handled, applied or fired glazing can "leak lead" when exposed to acid contents. Ceramics that were purchased before 1965 may contain lead.	Ceramic pieces may be "acid resist tested" for lead and other toxic metals by the Pittsburgh Testing Laboratory 850 Poplar Street Pittsburgh, Pennsylvania 15220
artists paints		Only decorative ceramics should be homemade. Kilns should be under hoods. Glazes should not be combined. There should be no smoking, eating or drinking in a ceramic's workshop.
5. *INTENTIONAL INHALATION OF LEAD*	Gasoline sniffing of leaded gasoline for a high by teen-agers can result in severe brain damage from tetraethyl lead poisoning.	Teenagers should be warned of the dangers of gasoline sniffing. Unleaded gasoline should be used for lawnmowers, snowblowers, paint cleanup and other home uses.

"The Mechanism of Damage"

Lead is absorbed through the lungs, stomach or intestines and then enters the bloodstream. The absorption rate in adults is 10%, in children it is 53%. Children are clearly at higher risk in their exposure to lead. Absorption of lead by the lungs is much more complete than intestinal tract absorption. Once lead is absorbed it is lost or excreted very slowly-more slowly in children than adults. We all have some body lead. Food is the principal source of lead for most people. Food takes it from the soil. It deposits everywhere. In the

... central nervous system
... bone marrow
... bones (90% of the body lead is in the skeleton)
... pancreas
... gums
... hair
... teeth

Lead poisoning results from the accumulation over a period of weeks, months or years of an excessive amount of lead. If the accumulation of lead is not excessive most of it is excreted in the urine, bile and sweat. Lead takes twice as long to excrete as it does to collect. However if lead is absorbed at high rates the tissue levels increase and result in toxic effects in

... soft tissue
... bone marrow
... kidneys
... *THE BRAIN*
... *THE NERVOUS SYSTEM*

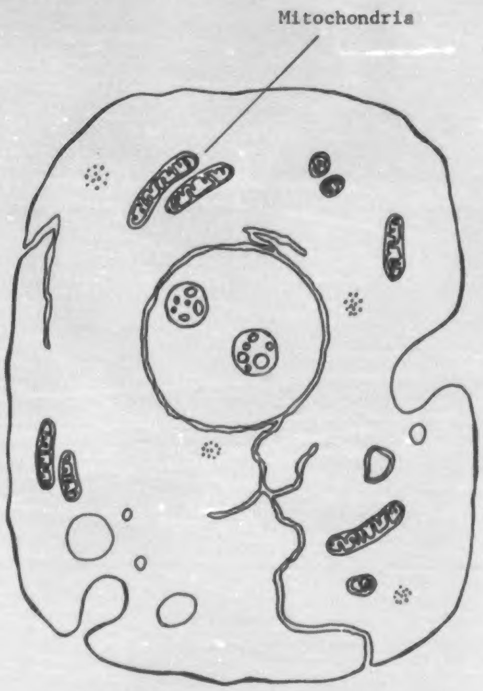
and large amounts are deposited in the bones. Blood levels are an indication of the balance between

... absorption
... excretion
... deposits in the body.

Once lead is bound to the central nervous system the damage is irreversible.

Lead poisoning effects every cell of the body by interfering with heme formation, the heme being the oxygen carrying component of the blood. The mitochondria pictured in figure 53 contains cytochromes which are present in every cell of the body. Their function is to allow the cell to utilize oxygen. Lead interferes with the heme synthesis in the mitochondria by interrupting the uptake of iron into the heme. Iron deficiency (which is common in children) and calcium deficiency may contribute to increased susceptibility to lead poisoning. Lead also causes potassium to leak from the cell and subsequent cell shrinkage. Lead in the bone marrow interferes with new

Figure 53. The Cell With Its Mitochondria, The Metabolic Center of The Cell.



red blood cell formation and damages the ones already formed.

The accumulation of lead in the brain leads to the swelling and irritation of the brain. The cells of the nervous system degenerate in lead poisoning.

Lead poisoning results in a spectrum of damage summarized in figure 54.

Figure 54. The Possible Effects of Lead Poisoning.

Physical	Behavioral	Intellectual
Vision impairment	Excessive Tiredness	POOR MEMORY
Hearing impairment	Drowsiness	EDUCATIONAL UNDER ACHIEVEMENT
Headache	Stupor	LEARNING DISABILITIES
Tender muscles and joints	Insomnia	MENTAL RETARDATION
Numbness	Loss of appetite	
Constipation	Restlessness	
Diarrhea	Irritability	
Abdominal pain	Confusion	
Colic	APATHY	
Vomiting	LETHARGY	
Metalic taste in mouth	Clumsiness	
Fever	HYPERACTIVITY	
Damage to the urinary & reproductive system		
Anemia		
Muscle degeneration		
Cerebral palsy		
Brain degeneration		
Nervous system degeneration		
Heart failure		
Coma		
Death		

"Screening Children for Lead Poisoning"

A certain amount of total body lead circulates in the body. The amount of lead in the blood is a good index of the amount of lead throughout the body. Ideally all children under 6 should be screened at least once a year, more in high risk communities. Many children have silent symptoms that are not particularly noticeable. A combination of some of the symptoms given in figure 55 can appear to be some other ailment. Lead poisoning is often misdiagnosed.

An FEP (Free Erythrocyte Protoporhvrin) is accurate and reliable and can be carried out by pricking the child's finger and putting drops of blood on a piece of filter paper. The dried blood can be analyzed. The FEP test can also detect cases of iron deficiency anemia because anemic children also have an elevated FEP level. The test costs $2.00 per child. The test must be followed up by a lead blood level test for those who have an elevated FEP.

A small portable machine, the Hemaflourometer can directly analyze the child's blood for metabolic products of lead poisoning, zinc protoporphyrin and iron deficiency anemia. This screening test costs 10¢ per child. A follow-up blood test is needed if the child has an elevated zinc protoporphyrin level.

The Center for Disease Control in Atlanta recommends that children's blood lead level should be below 30 micrograms per 100 millileters. Anything over 40 micrograms of lead per 100 millileters is considered elevated and calls for treatment even if the child has no symptoms. The Occupational Safety and Health Administration, Department of Labor sets the maximum safe blood level at 40 micrograms per 100 millileters as of February 1, 1979. Sixty micrograms is full blown lead poisoning and 80 micrograms is a severe case of lead poisoning.

HEW has estimated that if all children under 5 years of age in the United States were screened the estimated costs would be

cost of initial screening 20 million at $2.00 each	$40,000,000
cost of confirming testing 600,000 at $5.00 each	3,000,000
cost of chelation 110,000 at $250.00 each	27,500,000
	$70,500,000

The costs are high but not when compared to HEW's estimated cost of $195,000,000 that lead poisoning costs annually in hospitalization, lost earnings, special education and institutionalization. In 1973-76 under the Lead-Based Paint Poisoning Prevention Act 1,512,915 children were screened. 98,249 of those children had excessive lead absorption.

If there is not a screening program in the parent's community they can obtain information on how to organize a community-wide lead control program from

The Medical Committee
for Human Rights
710 South Marshfield
Chicago, Illinois 60612

"Treatment"

The child with elevated body lead can be given chemicals to "bind" the lead and carry it out in the urine until the total body lead is within safe levels. Chelators as these chemicals are called can be given by mouth, in the muscle or in the vein. About 50% of the lead is excreted in the urine within the first hour after treatment but it may take anywhere from 1 month to 3 years for complete chelation. The child must be in the hospital from 5 to 21 days and is an outpatient the rest of the treatment time. The effectiveness of the treatment must be monitored because chelating can also remove other metals. Treatment does not reverse or prevent brain damage if the lead poisoning is severe. Chelating probably does not remove much of the lead which has become part of the skeleton. However until chelating two thirds of children with lead poisoning died.

The child's environment must also be inspected as part of treatment to determine the source of poisoning. The source must be eliminated or altered so that poisoning does not take place again.

2. Other Heavy Metal Poisoning

Other heavy metals such as mercury, cadmium, arsenic and thallium like lead are excreted very slowly once they are taken into the body. They can also be chelated. Cadmium is used in galvanized pipes and fixtures. Some of the other metals have been used in pesticides and would come into the home via unwashed fruits and vegetables or the water supply from agricultural run-off or industrial pollution. Mercury poured into lakes, rivers and oceans by a few industries can cause severe mental retardation as can arsenic, thallium and cadmium. If a parent is living in an area where the water supply may be contaminated by industry or agriculture the safety of their water supply should be checked periodically.

3. Hexachlorophene Poisoning

Hexachlorophene was introduced in the 1950's in hospital nurseries in various parts of the world to combat a bacteria prevalent in hospitals. Then in the 1960's it was discovered that a "cousin" to hexachlorophene was capable of causing gene mutation. Subsequently hexachlorophene was linked to brain damage caused by 3% hexachlorophene soap baths used for infants over a long period. It effects the mitochondia (see figure 53) of the cell interfering with the enzyme system and oxygen supply of cells. Hexachlorophene soap should not be used on infants or young children.

4. Household Poisoning

The National Institute of Health estimates that 1 million children under 5 accidentally take household products and medicines each year.

... 50% of accidents to infants and children are due to swallowing poisonous substances or drug overdoses.
... Ages 1-5 account for 63% of all poisonings.
... Over 4,000 children in the U.S. die from poisoning each year.
... Aspirin is the cause of 20% of all poisonings leading to death.

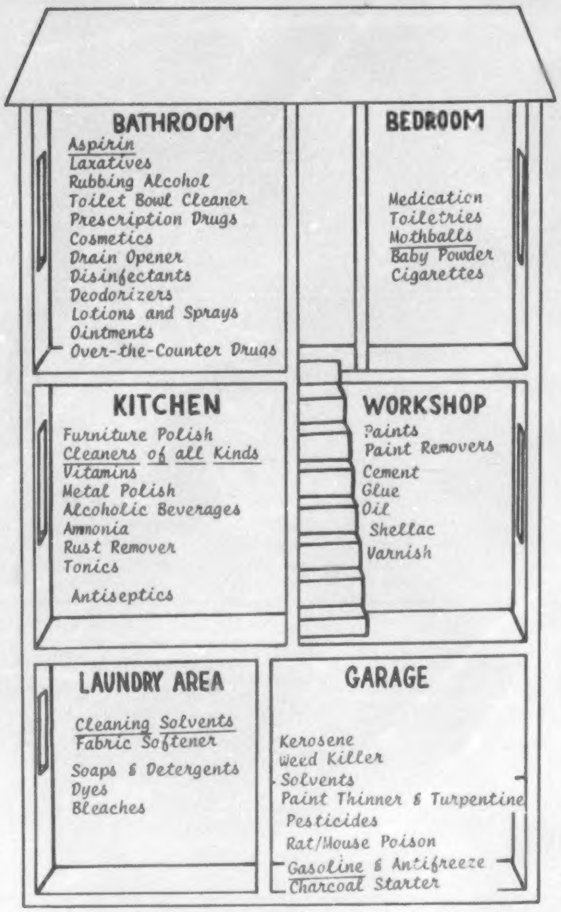
While death from childhood diseases continue to drop, deaths from poisoning continue to rise.

Young children during the crawl, walk, grab, explore stage grab everything and put it in their mouth. Knowing is looking, listening, feeling and TASTING. This hand-to-mouth behavior lasts until age 2 or longer. Poisoning death is so prevalent in children not only because of this hand-to-mouth stage but also because the poisoned child often manifests no symptoms, it is difficult to identify what they have taken and there is no universal poison antidote.

Many of those children who survive poisoning have brain and central nervous system damage either from the direct effect of the poison or by a restriction of the brain's oxygen supply.

Figure 55 illustrates the wide variety of poisons available to a child in a household.

Figure 55. The Wide Variety of Household Poisons Available to a Child.


BATHROOM
Aspirin
Laxatives
Rubbing Alcohol
Toilet Bowl Cleaner
Prescription Drugs
Cosmetics
Drain Opener
Disinfectants
Deodorizers
Lotions and Sprays
Ointments
Over-the-Counter Drugs
BEDROOM
Medication
Toiletries
Mothballs
Baby Powder
Cigarettes
KITCHEN
Furniture Polish
Cleaners of all Kinds
Vitamins
Metal Polish
Alcoholic Beverages
Ammonia
Rust Remover
Tonics
Antiseptics
WORKSHOP
Paints
Paint Removers
Cement
Glue
Oil
Shellac
Varnish
LAUNDRY AREA
Cleaning Solvents
Fabric Softener
Soaps & Detergents
Dyes
Bleaches
GARAGE
Kerosene
Weed Killer
Solvents
Paint Thinner & Turpentine
Pesticides
Rat/Mouse Poison
Gasoline & Antifreeze
Charcoal Starter

Plant poisoning can produce life or brain threatening symptoms such as progressive or severe vomiting, diarrhea, anemia, convulsions, respiratory distress, long paralysis and coma. The beauty of plants masks their bite. Figure 56 is a partial list of poisonous plants available to a child either in the house, yard, park, field or forest.

Figure 56. Some of the Poisonous Plants Available to The Child in The House, Yard, Park, Field or Forest.

Delphinium
Mountain laurel
Some Mushrooms
Pokeweed
Pokeberry

Wisteria
Yew
Cherry seeds
Buttercup
Marsh marigold

Hemlock
Stinkweed
Holly
Poinsetta
Bittersweet

Arnica
Calla lily
Elephant ear
Philodendron
Castor bean

Black locust
Elderberry
Azaleas
Rhododendron

Larkspur

Mistletoe
Prayer bean
Dutchman's breeches
Daphne
Foxglove

Hyacinth bulb
Jessamine
Wile sage
Lily-of-the-valley
Daffodil bulb

Jonquil bulb
Nutmeg
Oleander
Sweet pea
Rhubarb leaves

Plants are third on the list of most common substances responsible for human poisoning. More than 160,000 cases of plant poisoning are reported each year. There are more than 700 species of plants in the United States which cause death or illness. Most of these plants are found in suburban yards and homes.

Household Poison Prevention.

1. Parents should teach children never to eat any plants or parts of plants.
2. A parent should carefully follow dosage recommendations for prescription and over-the-counter drugs.
3. A parent should not emphasize the "good tasting" aspect of medicines.
4. Children should be told the truth about medicines: that too much can be harmful, that they are not candy.
5. Parents should not drink from bottles if they have young children.
6. Emergency numbers should be kept by the telephone. A Poison Control Center should be on that list.
7. Household cleaners, maintenance items and medications should be purchased in "Safe Packaging" (child-proof containers). Aspirin poisoning has been cut in half since the passage of the Poison Prevention Packaging Act of 1972. Parents should learn how to resecure child-proof packaging.
8. Medicines and other poisons should be kept out of reach of children in locked cabinets.
9. Medicines and other poisons should be kept in their original containers. Mr. Yuk stickers can be put on all poisonous substances in the home and the child can be taught that what is inside is "yuky".
10. Medicines should not be given in the dark.
11. Parents should not take medicine in children's presence.
12. Old medicine should be thrown away.
13. If a parent is using a poisonous substance and the telephone or door bell rings the parent should take the substance with them.
14. Parents should keep a poison emergency kit in the house and know what to do in accidental poisoning as outlined in the last section of this unit on page 229.
15. Alcohol should not be overused for sponging a feverish infant. It can result in severe intoxication or even death from the infant inhaling alcohol vapors. Cool water is a safer coolant.

5. Drug Abuse Poisoning

A wide range of effects on a teenager's metabolism have been pinpointed for most of the current drugs that are abused. Figure 57 summarizes the effects of severe abuse of some of the social drugs. How much of any of these drugs is a "safe" level is an unanswered question. The long term physical, mental and emotional effect of drug abuse during a teenager's rapid growth and development is as yet unknown but is being investigated.

Figure 57. The Mechanism of Damage and the Effects of the Severe Abuse of Social Drugs on the Brain.

Social Drug	Mechanism of Brain Damage	Effects on Functioning
Barbiturates Bromides Narcotics	There is a lack of oxygen to the brain because of depressed respiration. The brain is also malnourished because depressed blood pressure decreases the flow of blood to the brain.	Emotional Instability Delusions Slurred Speech MENTAL RETARDATION
Tranquilizers	Mechanism unknown but the area in the brain thought to be damaged is the thalmus gland.	Psychoses Motor Disorders MENTAL RETARDATION
Inhalation of Gasoline Solvents Glue Aerosols	There is a lack of oxygen to the brain because the bag used to hold the gas limits the oxygen supply.	MENTAL RETARDATION
LSD (lysergic Acid Diethylamide)		Possible Chromosome Damage
Alcohol	Severe swelling and congestion of the brain. Brain Shrinkage. Degeneration of the brain and hypothalmus due to Vitamin B deficits. Ventricles enlarge. Degeneration of the myelin.	Cerebral Palsy Convulsions Unconscious Episodes MENTAL RETARDATION
Wine	Demyelination	Personality Changes Convulsions Slurred Speech Muscle Weakness Cerebral Palsy MENTAL RETARDATION

More situations in which the parent must

- prepare the environment
- protect the child
- educate the child

and

- may have to give emergency first aid

to see that their child's brain receives a constant supply of oxygen and that the brain or central nervous system is not injured.

COMMON HOUSEHOLD DANGER #3 - *SUFFOCATION*

Suffocation from food or small objects is the leading cause (30%) of all deaths from accidents for children under one year. Accidental suffocation from mechanical causes such as cords or cribs causes 1/5 of childhood fatalities under one year. Figure 58 lists some common offenders leading to suffocation of children.

Figure 58. Common Food, Small Objects and Mechanical Offenders Related to Suffocation in Children.

Food	Small Objects	Mechanical
(Vomitus) Milk: propped bottle Unchewed meat Candy Gum Popcorn Nuts Raw vegetables	Buttons Beads Parts of Stuffed Animals Parts of Rattles Plug of Squeeze Toy Small Toys Rattles which can be pushed partially down the throat Balloons	Cribs with widely spaced bars Cribs with spaces between mattress and crib Regular bed between head or footboard & mattress Drapery or venetian blind cord String on pacifier Long scarves Necklaces Plastic bags Soft pillows Tucked in sheet or blanket Old refrigerators and freezers Clothes dryer

The prevention of suffocation in children flows easily from this list of common offenders:

1. Parents should not prop a bottle.
2. An infant who has spit up should be turned on his or her side.
3. Meat should be tender and cut into little pieces for a young child.
4. Hard candy, gum, popcorn and nuts should not be given to children under five. Children should not be allowed to run, climb or lie down with food in their mouth.
5. Small objects and dangerous rattles and toys must not be given to infants and small children.
6. Cribs must meet safety requirements.
7. Small infants should not be put to bed in a full size bed.
8. Cords, strings, plastic bags and necklaces should not be anywhere near small children. Plastic bags should be knotted and put in the outside garbage cans.
9. Infants and small children should not use soft pillows or have their covers tucked in.
10. Old refrigerators and freezers should have the doors removed or be disposed of.
11. Clothes dryers and refrigerators/freezers should have inside handles.
12. Parents should know first aid for choking and mouth-to-mouth resuscitation.

Suffocation from drowning is the second most common cause of death for children between 5 and 14. The under 5 age group accounts for 40% of the drownings occurring in swimming pools.

Drowning or lack-of-oxygen-to-the-brain-hazards include:

1. Household ... bathtubs
... kiddy pools
... homes under construction
... flooded basements

2. Yard ... backyard pools
... landscape pools
... fountains
... watering troughs
... farm ponds
... lake or ocean front

3. Boating ... lack of life jacket
... inadequate life jacket
... unbuckled life jacket

Prevention of drowning or suffocation:

1. A child under 2 should not stay alone for even a second when in the tub or bathtub.

2. Children under 3 years of age should be taught to float. Children under 3 cannot usually swim and breathe at the same time. Also their head is so large in proportion to their body that it is difficult for them to hold their head out of the water to breathe. (If a child can swim under 3 they should not be considered water-safe.) Babies and toddlers are also vulnerable to infections spread in the water and the chemicals in the water can cause problems.

3. For high risk infants who live near water or have a pool parents might consider Aquakinetics which is designed to teach a child to float on their back until rescued. It is a technique taught by a trained instructor on a one-to-one basis for a child 9 months to 5 years of age. Ninety percent of children can master turning on their back the minute they hit the water and floating for 30 minutes after 15 lessons over a 5 week period. These children must take a refresher Aquakinetics course each year.

4. Children should be taught to swim at age 3.

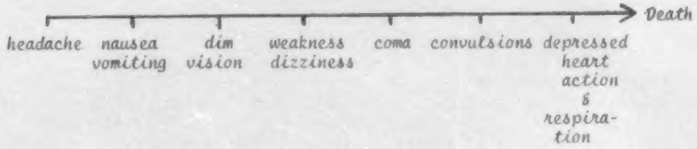
5. All children should be taught Drownproofing which is essentially floating almost motionless, face in the water and bobbing up with the face out to exhale and inhale. All this is done in a very rhythmical pattern.

COMMON HOUSEHOLD DANGER #4 - *ASPHYXIATION*

Sources of carbon monoxide, an odorless gas, around and in the home are the
- furnace
- space heater
- water heater
- clothes dryer
- oven
- refrigerator
- fireplace
- charcoal grill
- Hibachi
- car and other vehicles

Carbon monoxide kills and disables not by poisoning but by asphyxiation. The child suffocates because the cells receive no oxygen. The carbon dioxide displaces the oxygen in the blood. The hemoglobin combines with carbon monoxide 210 times more readily than with oxygen. Air containing just 1% carbon monoxide can kill in just 5 minutes.

The silent killer's symptoms are



If the child is not revived soon enough cerebral palsy and mental retardation may result.

Prevention of lack of oxygen to the brain from carbon monoxide asphyxiation:

1. A child should never be left in the car in an enclosure with the car running.
2. The back window of a station wagon should remain closed.
3. Children should not be allowed to stand near car exhaust.
4. All household appliances and heating systems should be adjusted for efficient combustion.
5. Fireplace chimneys should be cleaned periodically.
6. Hibachis, grills, lanterns and stoves should not be taken into a tent.
7. Parents should know how to give mouth-to-mouth-resuscitation.

COMMON HOUSEHOLD DANGER #5 - *SUFFOCATION/ASPHYXIATION*

Fires and burns rank third as the cause of accidental death in children between 1 and 13. Smoke not flames are the real killers and damagers of children due to inhaling poisonous fumes and carbon dioxide and having their oxygen supply blocked.

There are many fire prevention techniques which parents should practice.

1. Smoke alarms installed in the home are simple life-and-oxygen savers. Smoke detectors work by sensing the rising smoke from a fire far from the source of the fire and sounding an alarm. They are most valuable at night (3/4 of fires start at night) when a family may be overcome by smoke before it wakes them up.

   There are 2 types of smoke detectors. The photoelectric detector has a light source and a photoelectric cell. Light is reflected from the smoke particles into the photoelectric cell and an alarm is triggered. This type is more sensitive to smoke.

   The ionization chamber detector has a radiation source which produces electrically charged air molecules-ions which allow a small electric current to flow into the chamber. Smoke particles attach to the ions, reducing the flow of electric current; the change in current sets off the alarm. This type reacts more quickly to flaming. Both types should be installed or they can be bought in one unit. Detectors should be installed between where the family sleeps and the rest of the house and in the basement. All detectors should be U.L. approved, be tested regularly and serviced if necessary. A detector will give a person three minutes to escape which leads to the next prevention technique.

2. The role of the parents as home managers should include figuring out fire escape routes and having regular fire drills with a child or children. Every family member should know how to escape by two routes in case one is blocked. A meeting place outside should be planned. Children should be instructed not to open doors if they are hot, stay close to the floor, cover the face with a cloth and take short breaths. A rope or chain ladder for upstair exits should be kept in a familiar place.

3. Tot Finder stickers should be put on a child's window. This fire resistant sticker allows rescuers to quickly identify where they should look for children. These stickers are usually available from a fire department.

4. A good fire extinguisher, Type ABC, should be household equipment. It should be checked once a year and family members should know how to operate it.

5. Children should be taught the drop-and-roll technique to use if they should ever catch on fire. "Cross arms across the chest, drop, roll over and over slowly."

6. Small children should never be left alone in a house.

7. Matches should be kept out of the reach of children.

8. Flammable liquids should be stored away from the house and rags saturated with these liquids should be discarded.

9. Electrical equipment should be kept in good repair and circuits should not be overloaded.

10. Servicemen should periodically check the heating and electrical systems of the house.

11. Vacuum cleaner dust is very combustible. It should be put in the outside garbage can.

12. Parents should know how to give mouth-to-mouth resuscitation.

COMMON HOUSEHOLD DANGER #6 - *FALLS and HEAD INJURIES*

Head injuries are most common in the young child. Falls on stairs cause 250,000 disabling accidents a year. One million children sustain head injuries a year. As many as 60% of these have permanent brain damage. The infant and young child's brain is more vulnerable than the adults.

To prevent head injuries in children parents should:

1. Never leave a baby unattended on anything from which he or she might fall - not even for a split second. It is not worth the "time saved." One hand should always be on the baby or they should be taken with the parent.
2. Infant furniture and equipment must meet safety requirements.
3. Proper restraining devices must be used at all times for children in motor vehicles and carriers.
4. Harnesses should be used in high chairs and strollers.
5. Stairs should have gates at the top and bottom while the child is very young.
6. Stairs should be uncluttered and have a hand rail.
7. Mini bikes, scooters, mopeds, motorcycles, skateboards, and bicycles should be recognized as being inherently dangerous.
8. Scatter rugs should be nonskid.
9. The bathtub should have a nonskid mat.
10. Windows, screens and storm windows should have safety latches. Windows should be opened from the top when there are small children.
11. The pants and skirts of children should be the right length and shoes should be tied.
12. Bunk beds are for older children.
13. Children under 5 should always be supervised near traffic or crossing the street. Children under 10 cannot comprehend the interrelationship of seeing, hearing, judging distance, estimating time and guessing what vehicles will do necessary to handle such complex traffic situations.

COMMON HOUSEHOLD DANGER #7 - *ELECTRICAL SHOCK*

If electrical shock is extensive or is directly to the head it may result in severe generalized brain damage due to direct injury and destruction of the cells of the central nervous system. It may also stop the heart.

Prevention of electrical shock to children depends on the parents:

1. Putting protective caps or heavy electrical tapes on electrical outlets when the child is young.
2. Grounding all equipment that requires it.
3. Making sure extension cords are heavy enough to carry current.
4. Not using lights on metal Christmas trees. Seeing that Christmas tree lights carry the Underwriter's Laboratory Certification.
5. Not underestimating the small child's capacity to tamper with electrical sources such as chewing on cords and unscrewing light bulbs.
6. Knowing first aid for shock.

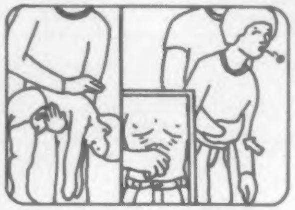
EMERGENCY PROCEDURES EVERY PARENT SHOULD KNOW

Accidents will happen even when

* the environment was prepared
* the child was protected
* the child was taught about safety and dangers.

If an accident threatens the oxygen supply to the brain or injury to the brain the first aid that a parent gives may mean the difference between life and death, normalcy and mental retardation for the child.

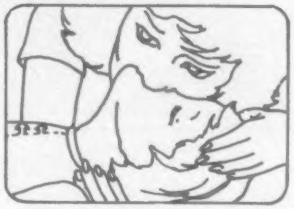
Every parent should be prepared to handle childhood emergencies. One of the focuses of this course of study is to give parents the knowledge they need to prevent head injuries and the skills to do what is necessary if the child does have a head injury and to give parents the knowledge they need to prevent injuries which damage the brain or cut off oxygen to the brain. It would be ideal for all parents to take a first aid course and renew it periodically and to have a good Emergency Reference Book. Approximately 10% of accidents are not preventable and approximately 30% should not be prevented for these "experiences" guard against more serious accidents as the child matures and learns how to handle the environment.



CHILD EMERGENCY SKILL #1 - *CHOKING*

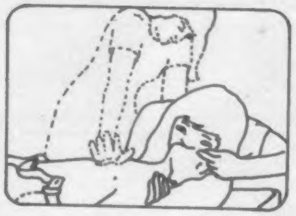
1. If the child can't cough, speak, breathe:
2. Do not try to remove the object or make the child vomit.
3. Give child 4 forceful blows on the back between the shoulder blades holding child over the forearm if the child is small enough.
4. * Wrap arms around waist of child making a fist with one hand grasping the fist with the other.
5. Make a quick upward thrust between the navel and rib cage. Adjust thrust to child's size.
6. Repeat with 4 thrusts if necessary.
7. Alter blows to the back and thrusts.

* Steps 4-7 not recommended for infant or small child.



CHILD EMERGENCY SKILL #2 - *RESPIRATORY DISTRESS*

1. Place child on their back.
2. Tilt the head back unless there is a neck or back injury.
3. Clear the mouth with cloth or fingers.
4. Place mouth over child's mouth and nose or mouth (pinching nose closed).
5. Give 4 quick-gentle breaths.
6. Give a new breath every
    - 3 seconds for an infant or small child
    - 5 seconds for an older child.
7. Remove mouth between breaths and listen for air leaving lungs.



CHILD EMERGENCY SKILL #3 - *HEART FAILURE*

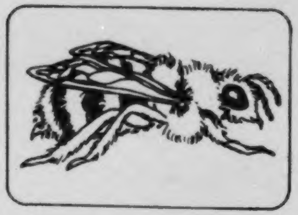
1. Check for 3 signs -
    - * no pulse
    - * no breathing
    - * unconsciousness
2. Give mouth to mouth resuscitation.
3. Place tips of middle and index fingers on middle of sternum with other hand under child's back for infant or small child.

   Place heel of hand about 2 finger widths above the tip of the sternum.
4. Make short thrusts down toward the backbone
    - about 1/2-3/4 inch 100 times per minute for infant or small child
    - about 3/4-1/2 inch 80 times per minute for older child.
5. As fingertips or heel of hand begins to rise give artificial respiration. Do not remove fingertips or heel of hand when giving artificial respiration.

CHILD EMERGENCY SKILL #4 - *CLOSED HEAD INJURY*

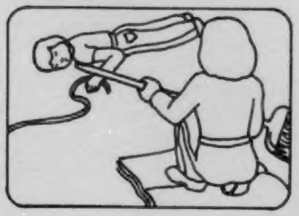
First aid in a closed head injury is watching the child.

What to watch for:	What to do:
Mild Head Injury - no vomiting - no loss of consciousness - no change in color	1. Watch for 48 hours for any of the more serious signs given below. 2. Apply cold compresses to the injury.
Moderate Head Injury - brief loss of consciousness - vomiting immediately after accident - recovery	1. Watch for 48 hours for any of the more serious signs given below. 2. Apply cold compresses to the injury. 3. Wake several times during the night to see if they can be roused. 4. Take child to doctor.
SEVERE HEAD INJURY (one or more signs) - prolonged loss of consciousness - persistent vomiting - convulsions - irregular breathing - pale color - bleeding from ear or nose - repetitive eye movements, unequal pupil size, uncoordinated eye movement - excessive drowsiness - weak arm or leg, walk off balance - speech problems - severe headache	1. Take child to the hospital. 2. Elevate the head and neck on pillows. 3. Loosen collar. 4. Turn head to side. 5. Give no food or fluid. *If any of these signs appear a month or later after the injury take child to the hospital.



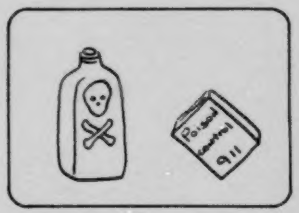
CHILD EMERGENCY SKILL #5 - *BEE, WASP, HORNET or YELLOW JACKET STING*

1. Remove the stinger and venom sac by gently scraping sting. (Only the bee has a venom sac.)
2. Apply ice to sting.
3. Place a constricting band (not too tightly) above the sting.
4. Keep the sting below heart level.
5. Give medication from insect emergency kit.



CHILD EMERGENCY SKILL #6 - *ELECTRICAL SHOCK*

1. Remove fuse or unplug cord or knock wire down with dry wooden object.
2. Stand on something dry - cloth - wood - rubber - and push or pull child away from wire with dry wood, pole or loop of rope.
3. Give artificial respiration.
4. Massage arms and legs to stimulate circulation.



CHILD EMERGENCY SKILL #7 - *POISONING*

1. Keep Syrup of Ipecac and Requa powdered charcoal in the medicine cabinet.

2. Keep number of Poison Control Center near the telephone. There are 560 such centers throughout the U.S. operating 24 hours a day. They are usually part of a hospital emergency room with a file of information on ingredients, toxicity, symptoms and recommended treatments for specific poisonings.

3. Watch for symptoms of child having taken poison
   - found with empty container
   - acts strangely
   - stains or burns around the mouth
   - vomiting, abdominal pain, drowsiness, rapid breathing, convulsions, unconsciousness.

4. Call Poison Control Center or doctor and give the name of the product or medicine or plant and the amount swallowed. (Call pharmacist to find out the name, strength and amount of medicine in the prescription.)

5. Follow directions of physician. In general vomiting is induced except for petroleum and lye products. Ipecac induces vomiting and powdered charcoal in water absorbs leftover poison. The stomach is usually pumped for plant poisoning.

⇨ Pretest

Cognitive

1. The infant and young child are more vulnerable than an adult in an accident because
   ____ a. the head of an infant and young child is bigger in proportion to its body than an adult.
   ____ b. the head of an infant is less well protected than an adult.
   ____ c. the neck is smaller and thinner in relation to the head than an adult.
   ____ d. all of the above.

2. Two ways in which childhood accidents can result in mental retardation are
   ____ a. a lack of stimulation and resuscitation.
   ____ b. a lack of oxygen to the brain and physical injury to the brain.
   ____ c. neither of the above.

3. __________ and __________ are two of the most important tools parents have in developing safety attitudes in their child.
   ____ a. Attention and affection
   ____ b. Punishment and rewards
   ____ c. Threats and spankings

4. From birth to 12 months of age is the
   ____ a. fall-and-crawl accident stage.
   ____ b. home-exploration accident stage.
   ____ c. exposure-to-the-world accident stage.

5. Parents who abuse their child should
   ____ a. keep their problems to themselves.
   ____ b. seek help.
   ____ c. neither of the above.

6. A baby sitter should above all be a person
   ____ a. trained in first aid procedures.
   ____ b. who has taken a child care course.
   ____ c. of responsibility.

7. ______ equipment sold for children meets safety criteria.
   ____ a. All
   ____ b. Some
   ____ c. No

8. A child under ____________ needs a special automobile restraint system.
   ____ a. 4 pounds or 40 months of age
   ____ b. 5 pounds or 4 years of age
   ____ c. 40 pounds or 4 years of age

9. Toys must be suited to the ______ of the child.
   ____ a. age
   ____ b. development
   ____ c. both of the above

10. In team sports played by their child a parent should make sure that
    ____ a. their child can always win.
    ____ b. their child is on the best team.
    ____ c. their child is coached and supervised by a person who puts safety above winning.

11. Substances in and around the home which can cause a severe allergic reaction are
    ____ a. insect bites and medicine.
    ____ b. house dust and loud music.
    ____ c. none of the above.

12. Houses built before _____ are very likely to contain paint and plaster which is high in lead content.
    ____ a. 1950
    ____ b. 1960
    ____ c. 1970

13. A young child should be screened for lead poisoning
    ____ a. 1 time every 2 years.
    ____ b. 4 times a year.
    ____ c. once a year.

14. A child who has lead poisoning should
    ____ a. have the lead removed from their body.
    ____ b. be taken out of school.
    ____ c. neither of the above.

15. Household poisons include
    ____ a. plants.
    ____ b. household cleaners.
    ____ c. nonprescription drugs.
    ____ d. all of the above.

16. Suffocation from ________ is the leading cause of death from accidents for children under one year of age.
    ____ a. strings and drowning
    ____ b. food or small objects
    ____ c. pillows and blankets

17. To prevent drowning accidents in young children a child should be taught to swim at ____ years of age.
    ____ a. 1
    ____ b. 2
    ____ c. 3

18. Carbon monoxide asphyxiation of a child can be prevented by
____ a. giving mouth-to-mouth resuscitation.
____ b. never leaving the back window of a station wagon down.
____ c. neither of the above.

19. As many as ___ percent of the one million children sustaining head injuries each year have permanent brain damage.
____ a. 60
____ b. 40
____ c. 20

20. The prevention of electrical shock in children is important because it can cause
____ a. death.
____ b. burns.
____ c. brain damage.
____ d. all of the above.

Key: 1.d, 2.b, 3.a, 4.a, 5.b, 6.c, 7.b, 8.c, 9.c, 10.c, 11.a, 12.a, 13.c, 14.a, 15.d, 16.b, 17.c, 18.b, 19.a, 20.d.

Affective Barometer

Circle the word or words which best represent the intensity of your feelings.

1. An infant and young child are more vulnerable in an accident than an adult.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

2. Childhood accidents can cause mental retardation.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

3. Parents develop a safety conscience in their child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

4. Dangers to a child change with each stage of development.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

5. Parents who abuse their child can be helped.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

6. Parents should choose a baby sitter who knows how to provide for the safety of a child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

7. Safety criteria must be used when purchasing toys for children.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

8. An automobile restraint system must be appropriate to the weight and age of the child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

9. In sports programs safety must take precedent over winning.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

10. The home has substances which can cause a severe allergic reaction.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

11. Poisoning can cause mental retardation.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

12. Young children should be screened for lead poisoning.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

13. The prevention of suffocation, asphyxiation and electric shock depends on good household management.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

14. Falls and head injuries can cause mental retardation.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

15. All parents should know emergency first aid procedures.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

16. An important role of the parent is that of household manager.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

Mini Lecture or Presentation

The Problem and The Challenge

You face risks today that were never experienced by children of previous generations. Modern technology enriches and endangers your lives and the lives of infants and young children.

If you become a parent one of the roles you will have to take is that of being a home manager. It is a role which is difficult and demanding.

There are more than 50 million accidental injuries a year in the United States resulting in 400,000 permanent disabilities each year. Over a 70 year period that means 28,000,000 permanently disabled citizens. Two thirds of all accidents are in the young. As the threat of disease is being lifted for the young the "scourge" of accidents is being put in its place. Death from accidents is higher during the first year of life than in any other year from birth to eighteen. Presumably the first year of life is the most protected. Accidents are the biggest single threat to the growing child during the first 5 years of life.

Approximately 10% of childhood accidents are probably not preventable while another 30% should not be prevented because they are the experiences which serve to guard against more serious accidents as the child grows. That leaves 60% of all accidents which could be prevented.

CHILDHOOD ACCIDENTS CAN AND DO
CAUSE MENTAL RETARDATION
IN THE GROWING CHILD.

Brain cells can never regenerate as other body cells can. Once they are killed they are lost forever.

Experience A

"OBSERVING AN INFANT"

Arrange with one of your students, a friend or staff member who have an infant or baby in the family for someone to bring the child in for the students to observe.

Questions

1. What size is the infant's head in relation to the rest of its body?
2. What does the baby's head feel like? (Have one student gently feel the infant's head.)
3. What do you notice about how the baby holds its head?
4. Could you say that the baby is just a miniature adult structurally?

Lead the discussion of these questions so that the following concepts are brought out:

1. The newborn's head is 1/4 of its body length while the adult's is 1/7 of its body length. There is proportionately more "head" to an infant to be injured.
2. The infant's head is less well protected than the adult's for to be born the cranial bones must be able to move so that the infant can pass through the birth canal. Use transparency 5, The Cranial Sutures to illustrate the "soft spots" of the infant's head.
3. The infant's large head is balanced on a neck that is thinner and smaller than in the adult or older child. The spinal column of the infant is mainly cartilage for it has not become a hard, boney structure yet.
4. Also the rib cage of the infant is thin and elastic so it cannot give the same protection as the thicker, more rigid rib cage of the adult.

THE INFANT IS VULNERABLE.

Experience B

"LEARNING WHEN 'BRAIN DAMAGED'"

1/3 of the class will write down a series of numbers as they are given by the instructor.

The other 2/3's of the class will form partners. One of the partners will write down a series of numbers as they are given by the instructor.

The other partner of the above group will "interfere" with their partner's task much as brain damage interferes with learning. They will:

a. cross off the first two numbers of four series that their partner writes down.

b. hold a hand over one of their partner's ears as they write the number series.
c. gently bump their partner's chair as they are writing.
d. lead their partner once around their chair in the midst of writing.

1. Give the partners their instructions or put them on the board.
2. Proceed with repeating 5 series of numbers for the two groups to write down.

5	10	4	3	1
2	4	8	9	10
6	3	1	2	4
8	5	3	1	2
7	9	6	4	2
6	10	9	6	4
7	8	9	10	1
3	4	6	9	8
4	5	9	7	2
10	9	8	5	1

3. Put the series on the board and have each student correct their paper. (No names on papers, please!) Pass the papers in two separate groups. Have two students average the scores.

One group has done this task with interference from their partner which acts much as brain damage does on the child trying to write series of numbers.

Mentally the brain injured child may be apathetic, have intellectual deficits, have poor short term memory (crossing out the first 2 numbers of 4 of the number series), have poor concentration (bumping the chair), have a tendency to be hyperactive (walking around the chair) and have impairment of judgment. The brain injured child may also have a high frequency hearing loss (one ear covered), seizures and cerebral palsy.

Compare the average scores of the two groups on writing number series to illustrate the problems in learning for the brain injured child.

Experience C

"THE VULNERABLE BRAIN"

Pass out ditto 54, Possible Causes of the Reduction of Oxygen to The Brain and Injury to The Brain. Use transparency 6, of the same title for you and the students to refer to. Have the students label their ditto while you present the following concepts. Use the transparency to illustrate:

A lack of oxygen to the brain in the growing child is a cause of mental retardation which is increasing in frequency although not as rapidly as physical injury to the brain. The greedy brain of the infant consumes 50% of the total blood oxygen while your brain consumes 25% of your total blood oxygen. If the brain does not receive oxygen for more than 4 minutes brain damage is likely. A lack of oxygen in an accident may result from an impaired blood supply, injury to the lungs, obstruction of the airway, injury to the brain stem controlling respiration, injury to the pituitary gland which stimulates body processes or twisting or rupture of one or more of the brain's many blood vessels. Bleeding between the skull and brain may result from direct injury and put pressure on the neurons of the brain.

The automobile and other motorized vehicles are largely responsible for the increase of mental retardation due to brain damage. But accidents which limit oxygen to the brain can be equally devastating. The immature brain which is rapidly growing is more vulnerable to injury than the brain of a child over 2 in whom the rate of brain growth has decreased or slowed.

TO PREVENT MENTAL RETARDATION IN THE GROWING CHILD ACCIDENTS MUST BE PREVENTED SO THE BRAIN REMAINS UNINJURED AND IT HAS A CONSTANT SUPPLY OF OXYGEN.

Nine out of ten preventable accidents to children could be avoided if parents-to-be were better informed about childhood safety. We are going to go through some experiences that will give you some basic knowledge in the prevention of childhood accidents. Your skills must be in 4 layers. Use transparency 7, The Role of The Parent as Household Manager: "The Egg of Safety" to illustrate.

1. First of all you must prepare the environment for a child so that it will be a relatively safe one. This takes more knowledge than it does money.
2. Then you must protect the child totally in the first year of life and quite extensively in the next 4 years of life from environmental dangers.

3. As a parent provides protection they must also develop the ability of the child to take care of himself or herself in a variety of situations. An infant continually experiences the parents complete caring for them. The child not only "feels" and "listens" to the parent caring but also observes how the parent behaves in a variety of situations. From this care and observing the child gradually learns how to care for themselves and others because they feel that they are worth taking care of. Limits are set through the parent's example, explanations, encouragement and insistence. Parents must protect but at the same time expose their child to increasingly demanding experiences that show the child the great richness of life and a diversity of experiences.

Experience D

"SAFETY BY AGE"

1. Divide the class into 4 groups:

Group 1: Those students who have sisters or brothers or a close neighbor or relative under one year of age.

Group 2: Those students who have brothers or sisters or a close neighbor or relative from 1 to 5 years of age.

Group 3: Those students who have brothers or sisters or a close neighbor or relative from 6 to 14 years of age.

Group 4: Those students who have brothers or sisters or a close neighbor or relative from 14 to 18 years of age or are that age themselves. Practically speaking everyone who isn't in group 1, 2 or 3.

2. Have groups 1 and 2 observe the behavior of a child from their assigned age range for 1/2 hour writing down all that the child does in a factual way. The student should also record the age of the child.

3. Have groups 3 and 4 interview someone from their assigned age range asking them what dangerous situations they have been in the last year and what, if any, accidents they have been in the last year.

4. Let each group share what behaviors, situations and accidents they recorded at the various age levels. As each group relates their information bring out the following concepts relating them to the behaviors the students have observed in each age group.

Age birth to 12 months: Group 1

This is the "Fall and Crawl stage." The child needs an environment which is 100% protective. The rapid development of physical and mental skills should never be underestimated. The baby should never be left alone, especially in the bathtub. Small objects and poisonous substances must be kept out of the reach of the child. Toys or objects the child plays with should not be smaller than the child's mouth. Parents should expect the unexpected.

Age 1 to 5 years: Group 2

The child moves from the need of 90% protection to 10% protection from the environment in this age range. It is a time of "home exploration accidents." Extensive safety education of the child must take place by: the child's observation of the adults, knowing "why" things are dangerous and bringing behavior under their own control.

Age 6 to 14 years: Group 3

The child is only about 5% protected from the environment by his parents at this point. This is the time of "exposure-to-the-world" accidents. Guidance and reminders are important. This is a time when defensive behavior is learned for not only must the child act positively him or herself but must anticipate the sometimes dangerous actions of others.

Age 14 to 18 years: Group 4

This is the time when "exploration-of-the-world-accidents" are likely to happen. Discussion and expanding knowledge with the child as well as making sure that "new adventures" are well supervised with adequate facilities and safety precautions become important for this age group.

5. Hand out dittos 55 and 56, Safety by Age as a summary.

Protection From The Environment - People

Experience A

"CHILD ABUSE"

1. Have the students bring in articles they have collected from the newspaper for several weeks about Child Abuse or make a collection of your own and pass them out for the students to read.

2. Questions
   a. How can this (child abuse) happen?
   b. Why does a parent abuse their child?
   c. What rights does a child have?
   d. How do you think violence is learned?
   e. How can child abuse be prevented?

Bring out the following concepts in the discussion:

One of the things that some children must be protected from in their own environment is their own parents. For decades it has been the right of parents to "discipline" and treat their children as they see fit. Child abuse is all physical, mental or verbal acts that harm the child. Cruelty to animal laws were being enforced before cruelty to children laws were even being contemplated. This lack of protection of the growing child is beginning to change. It must, for 6,000 children are permanently brain damaged from child abuse each year. From 30 to 53% of abused children subsequently become mentally retarded.

MENTAL RETARDATION FROM CHILD ABUSE CAN BE PREVENTED.

1. 80% of abusive parents can be helped. If you are an abused child you are a high risk potential parent for abuse. Also young people who see having a baby as a way to "get love" or to live out a fantasy of having a cuddly, sweet smelling baby need to experience the care of young children before they jump into parenthood. However if you become a parent and find you are saying yes to any of these questions (pass out ditto 57, Are You a High Risk Parent for Child Abuse?) you may be a high risk parent for child abuse and the best prevention is to seek help right away. Refer to several of the questions. Parents Anonymous is a nationwide self-help organization that works to stop the child abuse cycle with meetings, hotlines, mutual support programs, newsletters and information services.

2. Parents can improve their parenting skills by taking prepared birth parenting, behavior management, first aid, prepared parenthood and infant and child care classes offered in the community.

3. Parents who are abusers need to talk to a friend or professional. A parent also needs time out without their child to relax, pursue their own interests or just do routine chores without children.

4. Parents need time for themselves and their own interests.

5. The mother and father of a child both must take the responsibility for raising a child both in terms of time and nurturing.

6. Parents should do everything possible to have a healthy, normal child if they are going to have children.

7. Violence as a way of solving problems should be stopped both by adults and children.

8. Adults have a moral and legal obligation to report child abuse to the Department of Public Welfare and the Police (if the child is in immediate danger).

Experience B

"A BABY SITTERS'S POLL"

1. Take a classroom poll having all students who have ever done baby-sitting either at home or for other families fill out the poll prepared from dittos 58 and 59, A Baby Sitter's Poll. Have the students think of just one family when they are filling out the poll.

Baby Sitter's Poll

	Yes	No
Does the family you sit for leave emergency telephone numbers for you?	___	___
Do you or the family you sit for have a book of emergency first aid procedures?	___	___
Does the family you sit for leave the name and phone number of where they will be?	___	___
Does the family you sit for give you a tour of the house pointing out hazards that attract their children, necessities, phone, doors to be locked, emergency medical supplies and special equipment and supplies for the child?	___	___
Which of the following guidelines does the family you sit for ask you to follow?		
a. Never leave the child alone.	___	
b. Check on the child every half hour when the child is asleep.	___	
c. Stay awake.	___	
d. Keep the radio or T.V. turned down.	___	
e. No guests.	___	
f. Lock windows and doors.	___	
g. Allow no one in on any pretense.	___	
h. Take telephone messages without identifying yourself as a sitter.	___	
Does one of the parents of the family you sit for take you home if it is after dark?	___	___

2. Discuss the poll or just let the impact of taking it get the points within the poll across. Putting a child's safety and care in the hands of another person is a task which should be done with care and consideration. A parent substitute for a child should above all be a person with a sense of responsibility. If you are taking that responsibility begin by having emergency numbers wherever you sit. Pass out 4 or 5 Emergency Number Dittos to each student who baby sits. (Prepare from ditto 60.)

Protection From The Environment - Special Equipment Bought Just For The Child

Experience A

"EVALUATING EQUIPMENT BOUGHT JUST FOR THE CHILD"

1. Have students bring in baby equipment:
   - bicycle carrier
   - porta crib
   - baby carriers
   - strollers
   - high chairs
   - baby walkers
   - back carriers
   - car seats

   If you cannot secure one of each piece of equipment the Salvation Army or Goodwill might lend you some if you explained what you were using them for. Or the students could do the evaluating at home.

2. Divide the class into groups to evaluate each type of equipment. Use the Infant Equipment Criteria Sheets prepared from dittos 61 through 76 for the students to compare the pieces of equipment with standards set by the U.S. Consumer Product Safety Commission. Have the students use one criteria sheet for each piece of equipment.

3. Have the students summarize the hazards, safety features and supervision and use of each type of equipment.

Parents cannot assume that all products marketed for children are safe, well made and designed for the safety of the child in mind. Many products "hit-the-market" that can cause death or physical or mental disabilities in children. Head injuries and suffocation are common accidents resulting from unsafe or unsafely used equipment for children.

There are

9,000 serious crib injuries
200 crib deaths
7,000 serious high chair injuries
1,000 serious carrier injuries

each year in the United States. The incidence of mental retardation continues to rise and automobile injuries is one of the largest contributors to this rise. No more than 6% of all children riding in automobiles use adequate restraining systems. Restraint systems that come as standard equipment in new cars are not suitable for children under 4 years of age or for those weighing less than 40 pounds.

Experience B

"A RESTRAINT SYSTEM SPECIFICALLY DESIGNED FOR CHILDREN"

1. Demonstrate the correct use and principals of design of one of the car seats listed in figure 49.
2. Bring out the following general guidelines for buying a good restraint system for a small child:

   The car seat should

   a. distribute the pressure on the body over the largest possible area.
   b. provide good support for the head.
   c. be designed so that the head and body are cushioned.
   d. be secured by a standard lap belt through or around the child restraint or anchored directly to the floor of the vehicle.
   e. be designed so that the child faces backwards or sideways. (small infant)
   f. be designed so that the child is in an upright or semi-upright position secured with a harness which should have a strap at the base of the seat to position between the child's legs.
   g. be related to the age and weight of the child.
   h. be used properly. If the seat is designed with a top anchor it must be used.
   i. be used for the newborn on the ride home from the hospital and thereafter.

Experience C

"EVALUATING TOYS"

1. Have the students bring in 2 or 3 toys which belong to younger brothers and sisters or neighbors.
2. Have the students evaluate the toys they have brought in using ditto 77, Toy Evaluation Sheet.
3. Have a student who has a toy with a high rating tell why it was rated that way. What age child would it be appropriate to?
4. Have a student who has a toy with a low rating tell why it was rated that way. What age child would it be appropriate to?

The majority of parents would not purposely buy their child a toy which could harm the child yet every year 150,000 children receive emergency room treatment for injuries associated with toys. The U.S. Consumer Products Safety Commission has banned over 1,800 toys as unsafe. However, many parents are not aware of the hazards of some toys.

Besides the concepts brought out by the evaluation of toys which were brought in, a few more cautions should be mentioned:

1. Electrical toys should not be used by children under 8 years of age.
2. Children should be supervised with a toy until they learn how to play with it, its limitations and restrictions.
3. Broken toys should be repaired or thrown away.
4. Riding toys, tricycles and bicycles, should be well designed and suited to the size of the child.
5. The weight of a toy should be suited to the age of the child.

Experience D

"EVALUATING A SCHOOL SPORTS PROGRAM"

1. Have one student or a few students evaluate one sport's program of the school. Use the Sports Evaluation Sheet, ditto 78. Have the student report and discuss their findings.

Protection From The Environment -
Common Household Dangers

Besides things that a parent might buy or provide for their child there are at least seven common household dangers both inside the child's house and outside the child's house - that may often be a part of the child's environment but are not a part of the environment specifically prepared for her or him. Good parenting is a tough job! We are considering only those household dangers which can lead to mental retardation or learning problems.

Experience A

"AN EMERGENCY INSECT KIT"

1. Have the school nurse demonstrate an emergency insect kit containing Epinephrine in a syringe, antihistamine tablets, a tourniquet, alcohol swabs and instructions.

Each year 50 to 100 people die from insect stings in the United States. Out of our school of   there are probably   students (4 per 1000) who may be allergic to the sting of a bee, wasp, hornet, yellow jacket or several kinds of ants. That doesn't mean that the bite hurts like crazy and swells up. It means that student would have a severe life and mind-threatening allergic reaction resulting in perhaps a fever, hives, nausea, difficulty in breathing and even death. Any one of these and other signs is a medical emergency. Such children can be desensitized to the insect venom by being given insect extract over a period of time. The child should still wear protective clothing when at risk of getting stung, wear a Medic Alert Tag and have an Emergency Insect Kit at home, school and in the car as the one we saw being demonstrated.

Some children can also be allergic to drugs (prescribed or over-the-counter), vitamins, self care products, cosmetics, house dust, mold, animals, fur, feathers, tobacco, smoke, aerosols, chemical vapors, weeds, grass and pollen or a combination of these things such as in the Asthmatic Child. The parent must play the part of a detective in finding out what it is their child is allergic to and then trying to eliminate the offending substance from the child's life. As with the insect sting any severe reaction to a household irritant should be treated as a medical emergency. The parent will also need help from a physician in learning what must be done for an allergic child.

Experience B

"THE HOME LEAD INVENTORY"

1. Ask a group of students or all of the students in your class to inventory their house to see if they can find any sources of lead using The Lead Inventory, dittos 79, 80. Go over the list so that the students understand what each item means or is.

2. Discuss the number and types of lead sources that students were able to find as they took inventory of their home. Weave examples of things they found containing lead into the discussion giving them the following concepts:

   A common household danger is poisoning and lead poisoning heads the list in poisoning that causes mental retardation. Lead poisoning is a major problem in children and in some cities it is epidemic. Lead serves no function in the body. It is bad for the body and once it gets into the child's body it is difficult to get out. Yet it does, for you can see from our Inventory that there are many sources of lead poisoning. One little chip of paint from a house built before 1950 when lead was commonly used in paint, plaster and chalking is enough to kill a 2 year old child. Paint chips taste sweet to children, like candy. However lesser amounts of lead may cause mental retardation, hyperactivity, learning disabilities, convulsive disorders, blindness, brain damage and motor problems. But all this is preventable. How can we prevent 150 children from being institutionalized and 6,000 suffering from mental handicaps each year in the United States from lead poisoning?

   All children under 6 should be screened once a year for lead poisoning. Screening should be done more often if the child lives in a house built before 1950 which is in bad repair, if they live near a heavily travelled area (leaded gasoline pours 200,000 tons of lead into the atmosphere each year) or live near a lead industry such as smelting, battery manufacture, paint manufacture, bearing manufacture or ship builders. A simple screening can be done by obtaining blood by the "finger-prick" method. The test costs only $2.00 per child. A follow-up test may have to be done if the screening indicates the child may have a high lead level. If the lead levels in the child's body are above what is to be considered a "safe" level the child must be given a drug to combine with the lead so that it is eliminated from the body. The child's home must also be inspected for the source of the child's lead poisoning. If the house is deteriorating it must be repaired so that the child will not be poisoned again. If you find yourself living near an area where the water supply may be contaminated by industry or agriculture the safety of your water supply should be checked periodically by The Board of Health.

Experience C

"THE HOUSEHOLD POISON INVENTORY"

1. Have your students inventory their house to see how many common household poisons they can tabulate. Use dittos 81 and 82.
2. Using the "poisons" the students have inventoried as examples bring out the following concepts:

Approximately one million children under 5 years of age accidentally take household products and medicines each year. Fifty percent of all accidents to infants and children are due to swallowing poisonous substances or being given overdoses of drugs accidentally. Aspirin is the cause of 20% of all poisonings leading to death in children. Young children during the crawl, walk, grab, explore stage put everything into their mouth. Knowing for a baby and small child is looking, listening, feeling and TASTING.

Many of those children who survive poisoning have brain and central nervous system damage either from the direct effect of the poison or by a restriction of the brain's oxygen supply.

Plant poisoning can also produce life or brain threatening symptoms in a child. Here are a few of the plants found in and around the house that are poisonous. (Hand out ditto 83, Some of The Poisonous Plants Available to the Child in the House, Yard, Park, Field or Forest.) There are more than 700 species of plants in the United States which cause death or illness and most of these are found in suburban homes and yards.

3. Go over the Poison Prevention (ditto 84) Steps with the students giving each student a copy.

THE SECTION ON DRUG ABUSE POISONING MAY BE PRESENTED MORE EFFECTIVELY AS PART OF YOUR DRUG EDUCATION PROGRAM. (See page 219.)

Experience D

"HOME MANAGERS"

1. Divide the class into 5 groups. Each group has a brain storming task.

Group 1: Brainstorm. In 12 minutes think of as many ways as you can to prevent a child from suffocating in or around the home.

Group 2: Brainstorm. In 12 minutes think of as many ways as you can to prevent a child from drowning in or immediately around the home.

Group 3: Brainstorm. In 12 minutes think of as many ways as you can to prevent a child from being asphyxiated in the home.

Group 4: Brainstorm. In 12 minutes think of as many ways as you can to prevent a child from falling and/or injuring his or her head in the home.

Group 5: Brainstorm. In 12 minutes think of as many ways as you can to prevent a child from getting an electrical shock in the home.

2. Have each group report the prevention techniques they have come up with. Add to their techniques or use their list to bring out the following concepts:

Group 1. Suffocation

Suffocation from food or small objects is the leading cause (30%) of all deaths from accidents for children under one year. Prevention of suffocation in children includes the following techniques:

1. Parents should not prop a bottle.
2. An infant who has spit up should be turned on his or her side.
3. Meat should be tender and cut into little pieces for a young child.

4. Hard candy, gum, popcorn and nuts should not be given to children under five. Children should not be allowed to run, climb or lie down with food in their mouth.
5. Small objects and dangerous rattles and toys must not be given to infants and small children.
6. Cribs must meet safety requirements.
7. Small infants should not be put to bed in a full size bed.
8. Cords, strings, plastic bags and necklaces should not be anywhere near small children. Plastic bags should be knotted and put in the outside garbage cans.
9. Infants and small children should not use soft pillows or have their covers tucked in.
10. Old refrigerators and freezers should have the doors removed or be disposed of.
11. Clothes dryers and refrigerators/freezers should have inside handles.
12. Parents should know first aid for choking and mouth-to-mouth resuscitation.

Group 2: Drowning

Suffocation from drowning is the second most common cause of death for children between 5 and 14 years of age. Remember that the brain can only do without that vital oxygen for a maximum of 4 minutes in most cases. Prevention of drowning in children includes the following techniques:

1. A child under 2 should not stay alone for even a second when in the tub or bathtub.
2. Children under 3 years of age should be taught to float. Children under 3 cannot usually swim and breathe at the same time. Also their head is so large in proportion to their body that it is difficult for them to hold their head out of the water to breathe. (If a child can swim under 3 they should not be considered water-safe.) Babies and toddlers are also vulnerable to infections spread in the water and the chemicals in the water can cause problems.
3. For high risk infants who live near water or have a pool parents might consider Aquakinetics which is designed to teach a child to float on their back until rescued. It is a technique taught by a trained instructor on a one-to-one basis for a child 9 months to 5 years of age. Ninety percent of children can master turning on their back the minute they hit the water and floating for 30 minutes after 15 lessons over a 5 week period. These children must take refresher Aquakinetics course each year.
4. Children should be taught to swim at age 3.
5. All children should be taught Drownproofing which is essentially floating almost motionless, face in the water and bobbing up with the face out to exhale and inhale. All this is done in a very rhythmical pattern.

Group 3: Asphyxiation

Carbon monoxide kills and disables not by poisoning but by asphyxiation. The child suffocates because the cells receive no oxygen. Hemoglobin combines with carbon monoxide 210 times more readily than with oxygen. If a child is not revived soon enough cerebral palsy and mental retardation may result. Prevention of a lack of oxygen to the brain from carbon monoxide asphyxiation in children includes the following techniques:

1. A child should never be left in the car in an enclosure with the car running.
2. The back window of a station wagon should remain closed.
3. Children should not be allowed to stand near car exhaust.
4. All household appliances and heating systems should be adjusted for efficient combustion.
5. Fireplace chimneys should be cleaned periodically.
6. Hibachis, grills, lanterns and stoves should not be taken into a tent.
7. Parents should know how to give mouth-to-mouth resuscitation.

Fires can result in both asphyxiation and suffocation. Fires rank 3rd as the cause of death in children between 1 and 13 years of age. Smoke not flames is the killer and damager of children due to inhaling poisonous fumes and carbon dioxide and having their oxygen supply blocked. There are many fire prevention techniques which parents can practice:

1. Smoke alarms installed in the home are simple life-and-oxygen savers. Smoke detectors work by sensing the rising smoke from a fire far from the source of the fire and sounding an alarm. They are most valuable at night (3/4 of fires start at night) when a family may be overcome by smoke before it wakes them up.

2. The role of the parents as home managers should include figuring out fire escape routes and having regular fire drills with a child or children. Every family member should know how to escape by two routes in case one is blocked. A meeting place outside should be planned. Children should be instructed not to open doors if they are hot, stay close to the floor, cover the face with a cloth and take short breaths. A rope or chain ladder for upstair exits should be kept in a familiar place.
3. Tot Finder stickers should be put on a child's window. This fire resistant sticker allows rescuers to quickly identify where they should look for children. These stickers are usually available from a fire department.
4. A good fire extinguisher, Type ABC, should be household equipment. It should be checked once a year and family members should know how to operate it.
5. Children should be taught the drop-and-roll technique to use if they should ever catch on fire. "Cross arms across the chest, drop, roll over and over slowly."
6. Small children should never be left alone in a house.
7. Matches should be kept out of the reach of children.
8. Flammable liquids should be stored away from the house and rags saturated with these liquids should be discarded.
9. Electrical equipment should be kept in good repair and circuits should not be overloaded.
10. Servicemen should periodically check the heating and electrical systems of the house.
11. Vacuum cleaner dust is very combustible. It should be put in the outside garbage can.
12. Parents should know how to give mouth-to-mouth resuscitation.

Group 4: Falls and Head Injuries

One million children sustain head injuries a year. As many as 60% of these children have permanent brain damage. The infant and young child's brain is more vulnerable than the adult's. To prevent head injuries in children parents should:

1. Never leave a baby unattended on anything from which he or she might fall - not even for a split second. It is not worth the "time saved." One hand should always be on the baby or they should be taken with the parent.
2. Infant furniture and equipment must meet safety requirements.
3. Proper restraining devices must be used at all times for children in motor vehicles and carriers.
4. Harnesses should be used in high chairs and strollers.
5. Stairs should have gates at the top and bottom while the child is very young.
6. Stairs should be uncluttered and have a hand rail.
7. Mini bikes, scooters, mopeds, motorcycles, skateboards and bicycles should be recognized as being inherently dangerous.
8. Scatter rugs should be nonskid.
9. The bathtub should have a nonskid mat.
10. Windows, screens and storm windows should have safety latches. Windows should be opened from the top when there are small children.
11. The pants and skirts of children should be the right length and shoes should be tied.
12. Bunk beds are for older children.
13. Children under 5 should always be supervised near traffic or crossing the street. Children under 10 cannot comprehend the interrelationship of seeing, hearing, judging distance, estimating time and guessing what vehicles will do necessary to handle such complex traffic situations.

Group 5: Electrical Shock

If electrical shock is extensive or is directly to the head it may result in severe generalized brain damage due to direct injury and destruction of the cells of the central nervous system. Shock may also stop the heart. Prevention of electrical shock to children depends on the parents:

1. Putting protective caps or heavy electrical tapes on electrical outlets when the child is young.
2. Grounding all equipment that requires it.

3. Making sure extension cords are heavy enough to carry current.
4. Not using lights on metal Christmas trees. Seeing that Christmas tree lights carry the Underwriter's Laboratory Certification.
5. Not underestimating the small child's capacity to tamper with electrical sources such as chewing on cords and unscrewing light bulbs.
6. Knowing first aid for shock.

Emergency Procedures Every Parent Should Know

Accidents can and will happen even when parents have prepared the environment, protected the child and developed a safety conscience in the child. If an accident threatens the oxygen supply to the brain or injury to the brain the first aid that a parent gives may mean the difference between life and death, normalcy and mental retardation for their child. Emergency first aid skills should be a basic parenting skill. It would be ideal for all parents to take a first aid course from the American Red Cross and to review it periodically.

Experience A

"CHILD EMERGENCY SKILLS"

Divide the class into 7 groups. Give each group a different Child Emergency Skill to demonstrate. (Dittos 85 through 93.) Have the groups demonstrate their skill as well as they can or give the information needed to handle their emergency. Invite a Red Cross Instructor to class to help each group demonstrate their Childhood Emergency Skill.

The Role of a Parent as Household Manager is a difficult and extensive one. It takes a lot of organization, a lot of caring, a lot of love and a lot of knowledge. But with love and knowledge and some basic preparation of the environment this role can become just part of the routine ... a habit. As possible parents-to-be you can do more to prevent mental retardation by enveloping your child in an "egg of safety."

☐ Classroom Experience Options

1. General

a. Show a film for introduction to the concept of childhood safety.

1. Title: Teaching Children Safety
   Filmstrip and Record
   Available from: ⎈ 35
2. Title: How To Have An Accident In The Home A-508
   Time: 10 min. color film
   Content: Animated film showing the many kinds of accidents that can happen in the home due to carelessness.
   Available from: ⎈ 16
3. Title: The Giant Step A-698
   Time: 18 min. black & white film
   Content: Starting with a 1-year old child who has to be taught not to touch hot objects, the film emphasizes learning to live safely.
   Available from: ⎈ 16
4. Title: Child Safety is No Accident
   Available from: 24

b. Use pamphlets to add interest or emphasize a concept.

1. Panic or Plan
   Available from: ⬡ 20
2. Accident Handbook
   Available from: ⬡ 15
3. Accidents and Children
   Available from: ⬡ 15
4. Your Child and Household Safety by Joy Arena
   Available from: ⬡ 5
5. A Handbook of Child Safety
   Available from: ⬡ 10
6. For Kid's Sake
   Available from: ✪ 4
7. Protecting Infants and Toddlers from Accidents
   Available from: ⬡ 27

c. Take a classroom poll to determine how many childhood accidents the students have been involved in that they can remember.

d. Have the students ask their parents what accidents they had as infants and toddlers and share their information with the class.

e. Speakers

1. Have an administrative person from a State Hospital or Local Association for Retarded Citizens share how several of the children in their care became mentally retarded because of an accident.
2. Have an emergency room doctor talk about accident prevention in children.
3. Have a Pediatrician discuss why a young child is more vulnerable in an accident and more frequently involved in accidents than an older child.
4. Have a person who is brain damaged tell of their experience and their recovery.
5. Have a parent relate how they organize their household to prevent accidents.

f. Demonstration

1. Have a parent and their small child act out or demonstrate how they would teach a child a specific safety concept such as not jumping out of windows or not taking medicines.

2. Child Abuse

a. Show a film as an introduction or summary or discussion motivator of child abuse.

1. Title: Together on Main Street
Time: 14 min. color 16mm.
Content: Narrated by Bill Bixby this film tells the story of 2 parents who physically abused their child and what happens when one obtains help and the other doesn't.
Available from: 26 Rental: $18

2. Title: Children In Peril
Time: 22 min. color film
Content: Concerns the plight of the battered child and the battering parent. Points out that parental cruelty toward children and infants stems from end-of-the-rope situations, crises such as parental quarrel or job failure. Lay therapists trained for emergency help and follow-up are shown in action backed by foster-parent support.
Available from: 38 Rental: $24

3. Title: Maternal Deprivation in Young Children
Time: 30 min. black & white film
Content: Presents part of a record collected by a French research unit studying the effects of maternal deprivation in young children. Studies children between one and two-and-a-half-year-old, reared in institutions that had not provided for a stable and intimate relationship to one person. Shows some of the disorders appearing in young children deprived of maternal care for lengthy periods.
Available from: 27 Rental: $11

4. Title: The Battered Child
Time: 58 min. black & white film
Content: NET Journal documentary about child abuse, based on the book Battered Child. Presents interviews with nurses, doctors, psychiatrists, and parents associated with abused children. Touches on court rulings on parents. The team studies causes of child abuse and how to treat children affected mentally. Discusses whether parents need psychiatric therapy or penal action.
Available from: 18 Rental: $15.25

5. Title: Growth Failure and Maternal Deprivation
Time: 26 min. black & white film senior high
Content: Uses actual case studies of two children in which maternal deprivation drastically retarded physical and emotional development. Shows how proper treatment and care influenced a remarkable improvement in both children. Reveals the case history of both mother and child for analysis.
Available from: 18

6. Title: Identifying Neglect-Before It's Too Late
Time: 12 min. 35mm filmstrip color
Content: Shows some typical forms of child neglect and its behavioral and physical indicators. Discusses the difficulty of identifying child neglect.
From the We Can Help series.
Available from: 25 Rental: $12.50

7. Title: Child Abuse and Neglect
Series of filmstrips and discussion guide.
Available from: 30

b. Use a pamphlet for discussion.

1. Violence at Home #ADM 75-136
Available from: 2

c. Discussion questions

1. How do you respond to physical punishment?
2. How do you want to respond to physical punishment?
3. Why do you think parents abuse their children?
4. What are or should be the rights of children?

d. Speakers

1. Invite a parent from Parents Anonymous to speak to the class about their experiences.
2. Invite a child abuse task force speaker to talk to the class about their job.
3. Have a person from the Juvenile Division of The Department of Public Welfare explain what happens when they have a case of child abuse reported.

e. Have several students use the telephone book to see if they can find organizations in the yellow pages that would be of help to an abusive parent.

3. Equipment for Children

a. Show a movie to stimulate interest.

1. Title: It Hurts When They Cry
Time: 45 color slides w/cassette tape
Content: Provides guidance on the selection, use and maintenance of infant nursery equipment.
Available from: 24

2. Title: Crib Safety
Time: 9 color slides w/cassette tape
Content: Shows how to buy a safe crib or remodel an older crib to make it safer. For general audience.
Available from: 24

3. Title: Car Safety: Don't Risk Your Child's Life
Available from: 32

4. Title: Love Seats
Available from: 1

5. Title: How And Why Use Safety Belts A-1507
Time: 9 min. color film
Content: Dramatically presented, this film demonstrates the effectiveness of safety belts in car crash tests and shows how to protect every member of the family in motor vehicles. It explains the uses and advantages of lap belts, lap-shoulder strap combinations, retractor reels and other protective restraints.
Available from: 16

6. Title: In The Crash
Content: Why adult and child restraints are necessary.
Available from: 3 Rental: $7.50

7. Title: A Safe Ride For Every Child
Available from: 4

b. Use Baby Care Kit: It Hurts When They Cry as supplementary material.
Contains: Ideas, approaches and information in educating young people in the selection, use, maintenance and repair of child nursery equipment.
Available from: 4 free

c. Have a student send for:
Child Safety Catalogue
F and H Baby Products Catalogue
P.O. Box 2228-T
Evansville, Indiana 47714
Then give a report on some of their safety devices that are available.

d. Demonstrate the safety features of several good car seats for infants and children.

e. Use pamphlets for enrichment.

1. Crib Safety: Keep Them on The Safe Side
   available from: 4

2. Auto Safety and Your Child 520G
   available from: 6

4. Toys

a. Show a film to make students aware of "toy hazards."

1. Title: Bubble, Bubble, Toys and Trouble
   Time: 8½ min. color film 16mm
   Content: Consumers need to be aware of a variety of toy hazards, and this film describes these hazards in the form of the "world's worst toy." This film is an ideal discussion tool for workshops and meetings about toy safety.
   Available from: 24

2. Title: Recognizing Toy Hazards
   Time: 30 color slides w/cassette tape
   Content: Outlines toy hazards and how to buy and use toys with safety. For general audience.
   Available from: 24

3. Title: Toy Safety A-276
   Time: 10 min. color film
   Content: Illustrates proper precautions to be observed when selecting toys for children of various ages. Some safety rules for proper use of toys are also discussed.
   Available from: 16

b. Have a few students work on a special project.
Write U.S. Consumer Product Safety Commission
Washington, D.C. 20207
for their list of toys banned because they are a safety hazard. They can then look for these toys in local stores and report their findings to the class.

5. Allergies

a. Have a student who has asthma give a report including personal facts about this allergy.

b. Invite a pharmacist to talk about Medic Alert Foundation.

c. Use an excellent pamphlet to summarize this subject.

Insect Allergy DHEW Pub. #(NIH)78-1046
Available from: 1

6. Poisoning

a. Show a film to arouse interest in the subject.

1. Title: Lead Poisoning-The Hidden Epidemic HSC-930
   Time: 9 min. color film jr. & sr. high
   Content: Probes the tragedy of lead poisoning, pointing out the sources of lead, symptoms of early and acute stages, methods of detection, and means of treatment and prevention. Explains that lead is found in pottery, children's toys, paint chips, and also soil and air contaminated by industrial pollution and auto exhausts. Emphasizes that frequent blood tests, prompt treatment, and elimination of lead sources are necessary in order to reverse the growing epidemic. 1972
   Available from: 18 Rental: $6.00

2. Title: Lead Poisoning Could Strike Your Child A-965
   Time: 27 min. color film
   Content: This film emphasizes the danger to children from eating old paint and plaster in buildings painted before 1940. Viewers are taught how to recognize lead poisoning symptoms, where to obtain medical treatment and how to prevent lead poisoning in the house.
   Available from: 16

3. Title: Sniffy Escapes Poisoning A-598
   Time: 7 min. color film
   Content: This film is an animated cartoon designed to discourage small children from taking simple medicines without parental guidance. Points out the necessity of parents keeping home remedies under lock and key.
   Available from: 16

4. Title: One Day's Poison A-693
   Time: 30 min. black & white film
   Content: Illustrates the risks of poisoning in the home, particularly in the case of curious preschool children. Poisoning kills more of these children than the "major" children's diseases.
   Available from: 16

5. Title: Children At Play With Poison A-572
   Time: 10 min. color film
   Content: Tells the story of children who come in contact with products in the home that are potentially dangerous to youngsters if accidentally ingested. Eight steps for "poison proofing your home" and a description of what to do in case of accidental poisoning are included.
   Available from: ⊛ 16

6. Title: The Travels of Timothy Trent
   Time: 10 min. color film 16mm
   Content: Safety packaging is a valuable tool that offers an additional margin of safety from accidental poisoning of children. This film demonstrates this point through the character of Timothy Trent, a young fellow who can't resist putting everything he can reach in his mouth.
   Available from: ⊛ 24

b. Use pamphlets for student reports.

1. Old Paints & Rural Lead Poisoning
   Available from: ⬡ 18
2. Lead is Poison
   Available from: ⬡ 9
3. Protect Your Child Against Accidental Poisoning
   Available from: ⬡ 16
4. Childhood Poisonings
   Available from: ✪ 4
5. Protecting Infants and Toddlers from Being Poisoned
   Available from: ⬡ 27
6. First Aid for Poisoning
   Available from: ⬡ 26

c. Have students bring in chips of plaster and paint to find out which contain lead. (Using hydrogen sulfide.) Consult with the chemistry teacher or the local Board of Health for the test.

d. Have someone from the Board of Health demonstrate the Hemaflourometer for testing blood and a probe used to test samples in a child's home for lead.

e. Have your school water supply tested by The Board of Health for lead and other heavy metals.

f. Have student bring in poisonous plants that they find in their house or yard.

g. Invite someone from your local poison control center to speak to the class.

7. Suffocation

a. Have an instructor from the YWCA or YMCA talk about drownproofing and teaching young children to swim.

b. Pass out the pamphlet
   Plastic Film: Correct Use and Misuse
   Available from: ⬡ 16

e. Have several students write the Indiana State Board of Health to get information about the pickup of old refrigerators and then report their findings to class.

8. Fires and Explosions

a. Demonstrate the ionization and photoelectric cell alarms.

b. Distribute
   Smoke Detectors: What They Are and How They Work
   Available from: ✪ 6

c. Show the film
   Title: Don't Touch A-674
   Time: 7 min. color film
   Content: Designed to inform children of the hazards of playing with blasting caps. Shows dynamite in action, doing important jobs in agriculture and industry but drives home the warning, "Don't touch blasting caps; one of them can cripple or blind you for life."
   Available from: ⊛ 16

9. Emergency First Aid

a. Have a qualified instructor train students in Childhood Emergency Skills.

b. As reinforcement of skills learned show one or several of the following audio-visuals:

1. Title: Second Chance to Live
   Time: 28½ min. color film
   Content: Shows emergency medical care system in operation.
   Available from: 22

2. Title: Mouth-to-Mouth Resuscitation #4974
   Time: 12 min. color film
   Content: Gives step-by-step demonstrations of the application of mouth-to-mouth resuscitation to an infant or a small child, a youth, and an adult twice the size of the operator. Reasons for each step are explained.
   Available from: 38 Rental: $12

3. Title: New Breath of Life
   Video Cassette
   Available from: 1

c. Give this wall chart to each student.

First Aid Facts Wall Chart
Available from: 17

10. Have the students make a notebook out of all the class handouts from this unit.

Outside Classroom Experience Options

1. Have students tabulate for a period of a week in their home what the most stressful times are in the family.
2. Observe children at a day care center having the students tabulate the behaviors and skills at the various age levels handled by the center.
3. Visit a lead screening program to observe the process and ask questions.
4. Visit a Board of Health to observe testing for lead paint, lead blood level and atmospheric lead and to ask questions.
5. Have several students visit a local poison control center interviewing staff about how it is operated reporting back to the class.
6. Take the class to a local "Y" so that they can all learn Drownproofing - 1 lesson.
7. Have several students survey local appliance stores to see if any of their refrigerators, freezers or dryers have inside handles.
8. Have each student make a floor plan of their house and draw in 2 escape routes for each member of the family.
9. Have students distribute Tot Finder and Mr. Yuk stickers in the neighborhood to families who have children.
10. Visit pediatric floor of a hospital in small groups to get a visual picture of the trauma of childhood accidents.
11. Tour an urban renewal project to experience how paint and plaster containing lead become part of the soil.
12. Have students survey their parents to see if they have taken any "parenting" classes.

Action Checklist

Pass out the Action Checklist prepared from ditto 94 through 98 as a summary to this unit of study. Encourage their response to this call to action in their adult life.

HOUSEHOLD
MANAGER

As a parent of a growing child I will as Household Manager:

____ Develop a caring, loving, affectionate relationship with my child.

____ Be a "model" for safety attitudes and behavior.

____ Set limits for my child as well as explain why he or she must or must not behave in specific ways.

____ Make sure that "new adventures", "new undertakings" and "new explorations" for my child are well supervised under safe conditions.

____ Strike a balance between limiting for safety's sake and allowing my child new experiences and stimulation from the environment.

____ Seek help immediately if I find myself striking out repeatedly against my child verbally or physically or if I have a very negative feeling toward my child or my job of being a parent.

____ Take parenting classes if I feel inadequate as a parent or have difficulty in carrying out my role as a parent.

____ Make time for my own interests, being alone and being just with the mother or father of my child.

____ Not use violence as a way of solving problems.

____ Report child abuse to the Department of Public Welfare and the police if I see or hear a child being abused.

____ Carefully select any baby sitters for my child and give them instructions and guidelines to follow.

____ Select equipment for my child which meets safety criteria and limit undue hazards.

____ Use a good restraint system (car seat) for my child as we take her or him home from the hospital and continue its use.

____ Use a restraining system for my growing child appropriate to their size in motor vehicles 100% of the time and use such a system myself.

____ Buy toys for my child which are well designed and well constructed, meet safety criteria and are appropriate to the age of the child.

____ Be sure that if my child is involved in sports they are adequately supervised by competent people who give safety a high priority.

____ Register a drug or insect allergy my child has with Medic Alert Foundation and have my child wear a Medic Alert Tag.

____ Do away with or reduce the specific household irritant or number of household irritants if I have an allergic child.

____ Renovate or repair my house if it was built before 1950 so that plaster and paint will not flake off.

____ Keep my house free of lead sources or keep them out of the reach of my small child.

____ Have my child between the ages of 1 and 6 tested for lead poisoning once a year. If I live in a section of the city where houses were built before 1950, live near a lead industry or near a heavily travelled highway tested twice a year.

____ Have my child treated for lead poisoning and find and remove the source of lead in their environment if my child has an unsafe blood-lead level.

____ Not use leaded gasoline, unusual amounts of shellfish, evaporated milk, cider, lead base paint, lead plumbing or ceramics of questionable lead content.

____ Not give objects or articles containing lead to a small child.

____ Have my water supply tested for contamination by industry or agriculture if either of these sources of contamination is a threat.

____ Not use soap containing hexachlorephene on my infant or child.

____ Lock up or put out of reach all household poisons and medications when my child is young.

____ Keep medicines and other poisons in their original containers.

____ Label all household poisons and medications with Mr. Yuk stickers and emphasize the bad tasting and harmful nature of these substances.

____ Instruct my child to not eat plants or parts of plants outside or houseplants.

____ Buy Child-Safety-Packaging for as many household poisons and medications as possible.

____ Never give medications in the dark or more than what is recommended.

____ Not take medicine in my young child's presence.

____ Keep a list of emergency numbers beside the phone including the number of the nearest Poison Control Center.

____ Not overuse alcohol or use water instead for sponging my child for fever.

____ Not give my child under 5 candy, gum, popcorn or nuts.

____ Give my small child only tender, finely cut meat.

____ Not prop my infant's bottle.

____ Keep small objects and toys out of the reach of my young child or infant.

____ Keep cords, strings and necklaces of any kind away from my young infant or child.

____ Knot and dispose of plastic bags in an outside garbage can.

____ Get rid of old refrigerators and freezers or take their doors off.

____ Try to buy a dryer, refrigerator and/or freezer with an inside handle.

____ Not allow my child to stand near motor vehicle exhaust.

____ Have household equipment checked periodically to make sure it is adjusted for efficient combustion.

____ Not take Hibachis, grills, lanterns, stoves into tents, campers or recreation vehicles.

____ Install smoke alarms in my home.

____ Have fire drills with my child.

____ Put Tot Finder stickers on my child's bedroom window.

____ Equip my home with a fire extinguisher.

____ Teach my child the drop-and-roll technique for extinguishing a body fire.

____ Keep electrical equipment in good repair and not overload circuits or extension cords.

____ Store flammable liquids away from the house and matches out of the reach of children.

____ Never leave an infant unattended on a place where they might fall even for a second.

____ Never leave children alone in my home until they are a very responsible age.

____ Have gates at the top and bottom of the stairs when my child is young and keep the stairs uncluttered.

____ Consider the inherent dangers to my child of mini-bikes, scooters, mopeds, motorcycles and skateboards before purchasing these "toys" for my child.

____ Have nonskid rugs and a nonskid mat in the tub.

____ Have safety latches on windows, screens and storms particularly above the first floor of my home.

____ Allow only older children to sleep in the upper bunk (of a well constructed bunk bed).

____ Supervise my child under 5 near or in traffic.

____ Put protective caps or electrical tape over electrical outlets of my home when my child is small.

____ See that electrical equipment is grounded.

____ Not use lights on a metal Christmas tree.

____ Know how to administer First Aid for choking respiration failure, heart failure, a closed head injury, insect stings, electric shock and poisoning.

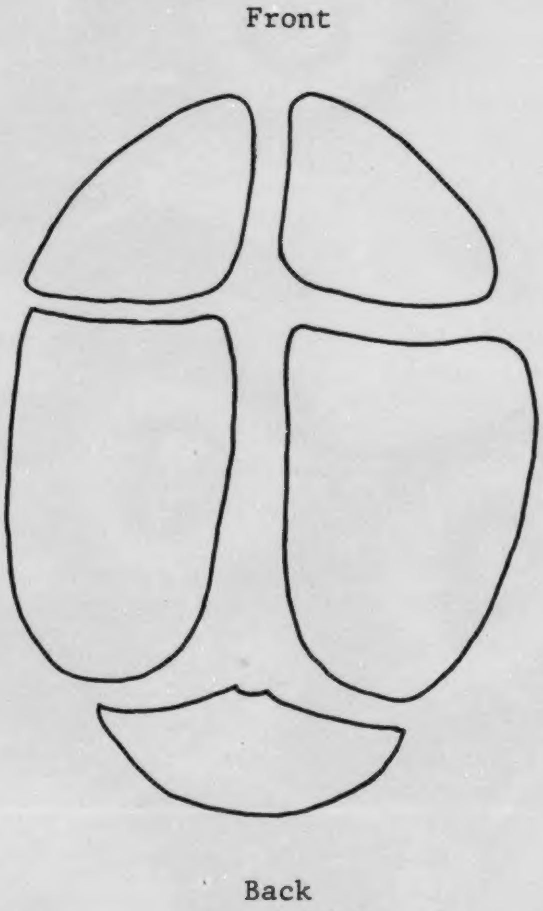
⇨ Post Test

Use the same test as for the pre test. Have the students take it in class or as homework. Let them compare their gains.

III. The Household Manager

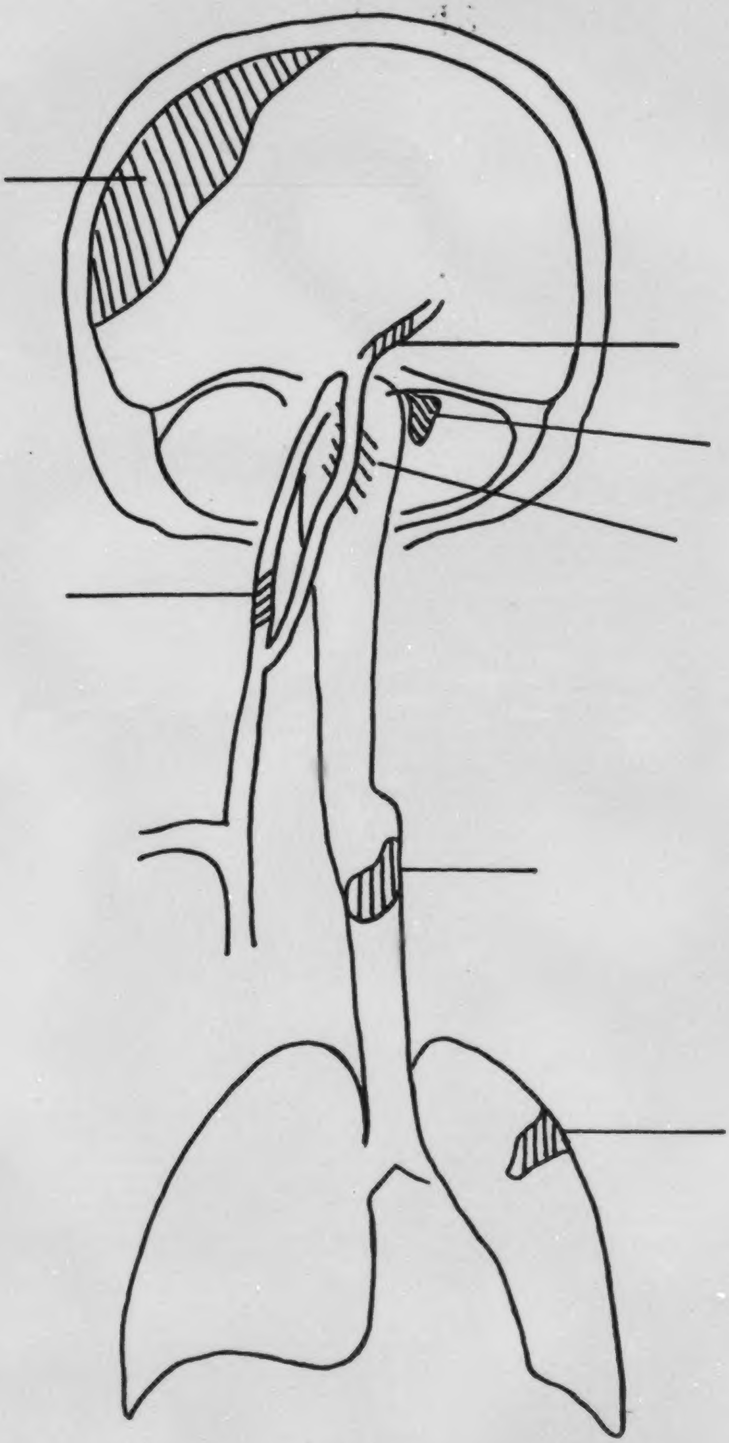
Transparency 5

The Cranial Sutures



Ditto 54

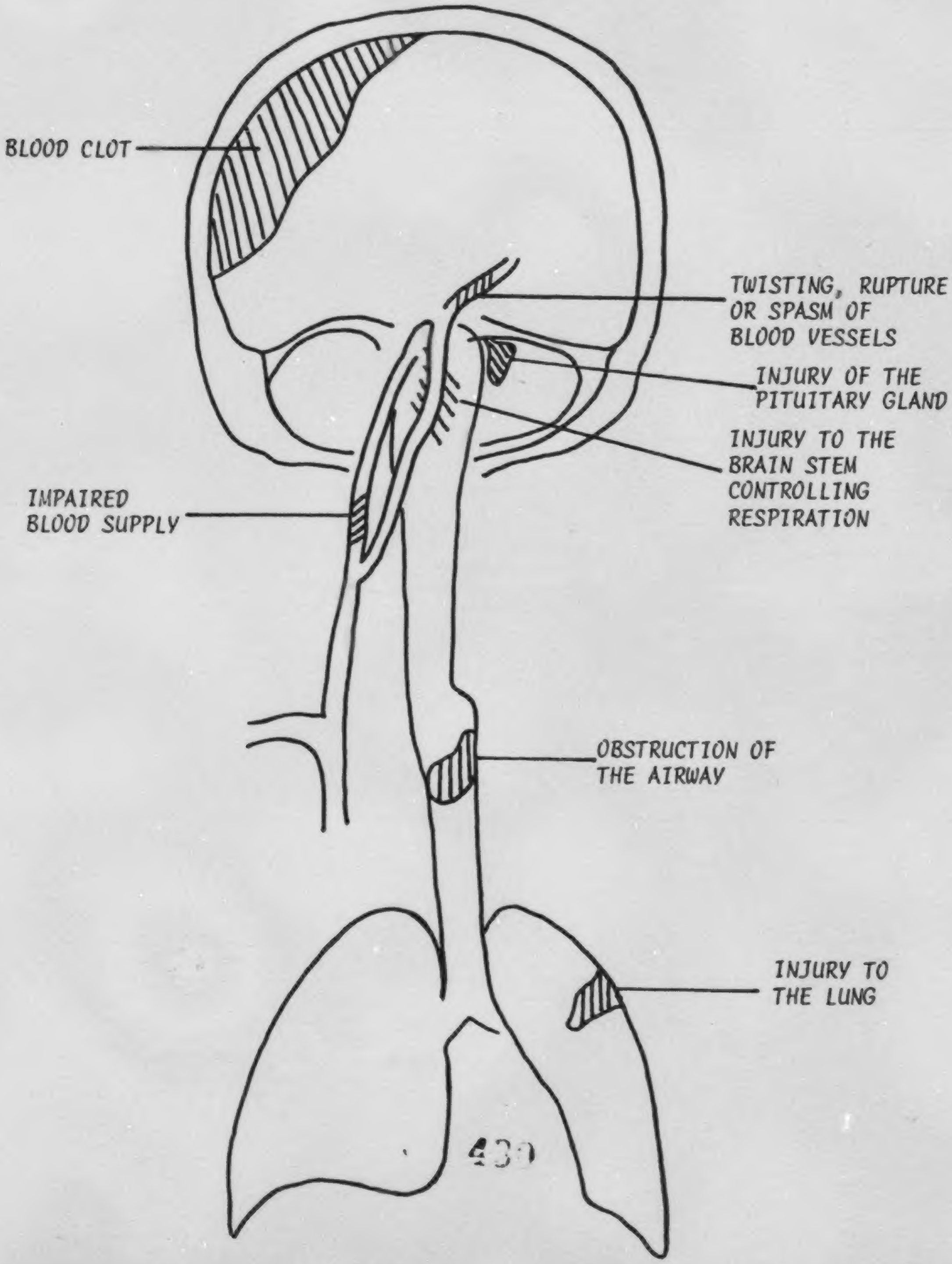
Possible Causes of the Reduction of Oxygen to the Brain and Injury to the Brain



III. The Household Manager

Transparency 6

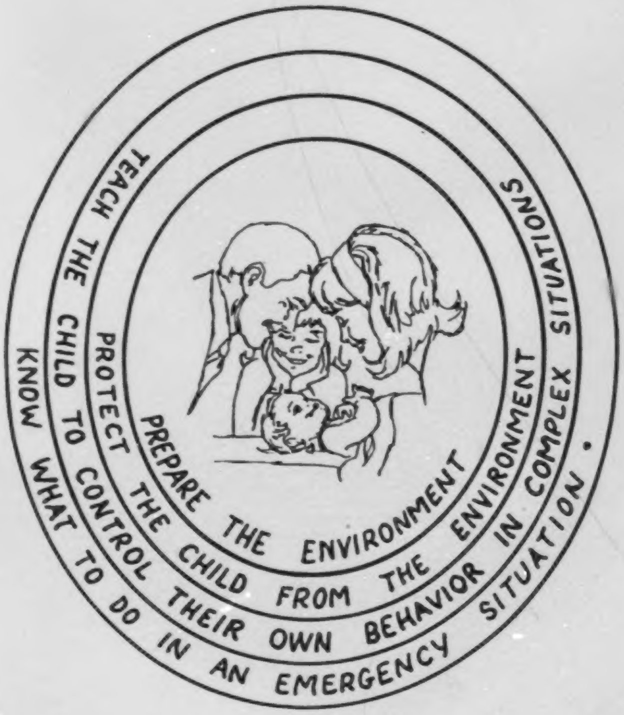
Possible Causes of the Reduction of Oxygen to the Brain and Injury to the Brain


BLOOD CLOT
TWISTING, RUPTURE OR SPASM OF BLOOD VESSELS
INJURY OF THE PITUITARY GLAND
INJURY TO THE BRAIN STEM CONTROLLING RESPIRATION
IMPAIRED BLOOD SUPPLY
OBSTRUCTION OF THE AIRWAY
INJURY TO THE LUNG

III. The Household Manager

Transparency 7

The Role of The Parent as Household Manager: "The Egg of Safety"


TEACH THE CHILD TO CONTROL THEIR OWN BEHAVIOR IN COMPLEX SITUATIONS
PROTECT THE CHILD FROM THE ENVIRONMENT
PREPARE THE ENVIRONMENT
KNOW WHAT TO DO IN AN EMERGENCY SITUATION.

Ditto 55

Safety By Age

Age	*Typical Accidents*	Safety
Birth to 12 months 100% Protective Environment *The highest death rate from accidents for children is between 3 and 12 months.	*"Fall & Crawl Accidents"* *Suffocation* *Falls* *Poisoning* *Drowning* *Burns*	Don't underestimate the rapid development of physical and mental skills. Never leave the baby alone when awake especially in the bathtub. Keep dangerous and small objects out of reach as well as poisonous substances. Toys or objects that a baby plays with should not be smaller than their mouth. Expect the unexpected.
1 to 5 years Moves from 90% to 10% protected environment	*"Home-Exploration Accidents"* *Motor vehicle* *Poisoning* *Falls* *Burns*	Extensive safety education of the child must take place by the observation of adults, knowing the "why" of former limits and bringing behavior under their own control.
6 to 14 years 5% Protected Environment	*"Exposure-to-the-World Accidents"* *Motor vehicle* *Falls* *Drowning*	Guidance and reminders are important. This is a time when defensive behavior is learned. Not only must the child act positively himself but must

III. The Household Manager

Ditto 56

Safety By Age (Continued)

		anticipate the sometimes dangerous actions of others.
14 to 18 years	*"Exploration-of-the-World Accidents"* *Motor Vehicle* *Drowning* *Falls* *Burns*	Discussion and expanding knowledge with the child as well as making sure that "new adventures" are well supervised with adequate facilities and safety precautions become important.

III. The Household Manager

Ditto 57

Are You a High Risk Parent for Child Abuse?

1. Does your child seem very difficult to care for?
2. Is your child ungratifying either emotionally or physically?
3. Are you apathetic about your child?
4. Do you show little concern for your child's health, nutrition or childhood experiences?
5. Do you count the minutes until you can get away from your child?
6. Do you dislike your child?
7. Do you dislike touching your child?
8. Does your child's crying upset you?
9. Are you disappointed in your child's behavior?
10. Are you disappointed in your child's development?
11. Do you feel that your child is deliberately trying to hurt or upset you?
12. Do you worry that your neighbors might disapprove of the way you raise your children?
13. Are you afraid to discipline your child because you may lose control?
14. Do you have an impulse to shame or hurt your child?
15. Do you hurt your child repeatedly?
16. Do you feel guilty because you are not happy or satisfied being a parent?

Ditto 58

The Baby Sitter's Poll

	Yes	No
Does the family you sit for leave emergency telephone numbers for you?	____	____
Do you or the family you sit for have a book of emergency first aid procedures?	____	____
Does the family you sit for leave the name and phone number of where they will be?	____	____
Does the family you sit for give you a tour of the house pointing out hazards that attract their children, necessities, phone, doors to be locked, emergency medical supplies and special equipment and supplies for the child?	____	____
Which of the following guidelines does the family you sit for ask you to follow?	____	____
a. Never leave the child alone.	____	
b. Check on the child every half hour when the child is asleep.	____	
c. Stay awake.	____	
d. Keep the radio or T.V. turned down.	____	
e. No guests.	____	
f. Lock windows and doors.	____	
g. Allow no one in on any pretense.	____	

III. The Household Manager

Ditto 59

The Baby Sitter's Poll
(Continued)

h. Take telephone messages without identifying yourself as a sitter. ____

Does one of the parents of the family you sit for take you home if it is after dark? ____ ____

III. The Household Manager:

Ditto 60

EMERGENCY

Emergency 911

Police ______

Fire Department ______

Hospital ______

Poison Control Center ______

Doctor ______________ Office ______

Home ______

Alternate Doctor ______________ Office ______

Home ______

Drugstore ______________ Phone ______

All-Night Drugstore ______________ Phone ______

Father's Work Phone ______

Mother's Work Phone ______

Neighbor ______ Address ______________

Phone ______

Friend ______ Address ______________

Phone ______

Relative ______ Address ______________

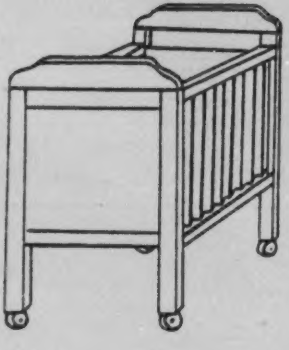
Phone ______

Electric Company ______________ Phone ______

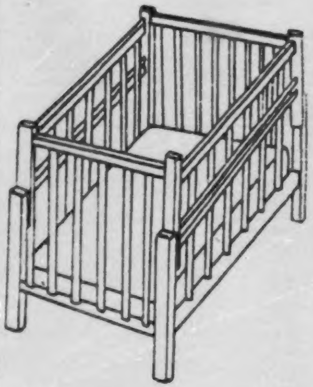
Gas Company ______________ Phone ______

Water Department ______________ Phone ______

Emergency Shelter

Equipment	Hazards	Safety Features	Supervision & Use
STANDARD SIZE CRIBS 	*1. Plastic wrapping on mattresses.* *2. Mattresses too small for crib; baby can get stuck between mattress and sides and suffocate.* *3. Crib slats too far apart; baby could wriggle through, his head become stuck, and strangle.* *4. Crib so small baby can climb out.* *5. Large toys, objects or bumper pads baby can climb on and fall out.*	1. No more than 2-3/8" between slats (about 3 adult fingers width.) 2. Snug fitting mattress. If you can fit 2 adult fingers between mattress and sides, the mattress is too small. 3. Crib sides which lock at maximum height. (*20 inches) 4. No rough edges or exposed bolts. 5. Safe materials;e.g. nonlead paint (particularly important with older or used equipment.) 6. Latching device which cannot be released easily. *If there are allergies in the family consider purchasing a hypoallergenic mattress. *There should be no ledges for the child to climb up on in the crib.	1. Check latches to make sure they are secure. 2. Check slats on side rail for closeness and install bumper pads if too far apart. 3. If there is too much space between mattress and sides and you cannot replace it, stuff toweling between sides and mattress. 4. Check baby's standing height on mattress against side rail; if height of rail is less than 3/4 child's height when the mattress is in the lowest position, obtain a larger crib, or graduate the baby to a regular bed. 5. Remove large toys or any objects the baby might stack or use for climbing. 6. If dangling toys are left hanging from crib sides, make sure cord

Equipment	Hazards	Safety Features	Supervision & Use
STANDARD SIZE CRIBS (Continued)		*Decorations on the crib should not be small enough to inhale or eat. *The side release mechanism should have a 2-kick release.	is not long enough to wrap around baby's neck (less than 12"). *Some sources recommend using bumper pads when the infant is very small. *Never use plastic bags to cover a crib mattress. The plastic sticks to the nose and causes suffocation.
COMMENTS ON Piece of Equipment I Am Evaluating			

Equipment	Hazards	Safety Features	Supervision & Use
NON-STANDARD SIZE CRIBS 	1. Plastic wrapping on mattress. 2. Mattresses too small for crib; baby can get stuck between mattress and sides and suffocate. 3. Crib slats too far apart; baby could wriggle through, his head become stuck, and strangle. 4. Crib so small baby can climb out. 5. Large toys, objects or bumper pads baby can climb on and fall out.	1. No more than 2-3/8" between slats (about 3 adult fingers width). 2. Snug fitting mattress. If you can fit 2 adult fingers between mattress and sides, the mattress is too small. 3. Crib sides which lock at maximum height. 4. No rough edges or exposed bolts. 5. Safe materials; e.g., nonlead paint (particularly important with older or used equipment). 6. Latching device which cannot be released easily.	1. Check latches to make sure they are secure. 2. Check slats on side rail for closeness and install bumper pads if too far apart. 3. If there is too much space between mattress and sides and you cannot replace it, stuff toweling between sides and mattress. 4. Check baby's standing height on mattress against side rail; if height of rail is less than 3/4 child's height when the mattress is in the lowest position, obtain a larger crib, or graduate the baby to a regular bed. 5. Remove large toys or any objects the baby might stack or use for climbing. 6. If dangling toys are left hanging from crib sides, make sure cord is not long enough to wrap around baby's neck (less than 12 inches).

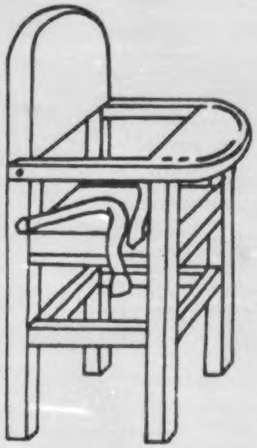
III. The Household Manager

Infant Equipment Criteria - Ditto 64

COMMENTS ON
Piece of
Equipment
I Am
Evaluating

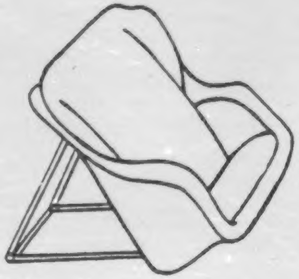
III. The Household Manager

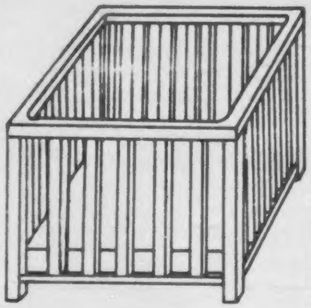
Infant Equipment Criteria - Ditto 65

Equipment	Hazards	Safety Features	Supervision & Use
HIGH CHAIRS 	*1. Unstable chairs which baby can tip over* *2. Trays which baby can unlatch by pushing against.* *3. Seat Belts attached to tray instead of chair.* *4. Chairs left in path of opening doors, refrigerator doors, range, or other kitchen equipment.* *5. Rough or sharp edges on points.*	1. Wide, stable base. 2. No sharp or rough edges or sharp points. 3. Restraining straps sturdy and attached securely to chair itself. 4. Tray which locks securely. *A low table chair is much safer but the child cannot be as much a part of the family group and misses out on stimulation.	1. Be sure child is strapped in securely whenever he is in chair; never use tray by itself as restrainer without straps. Even if baby is sitting at the table without the tray, the straps should be used. *Never leave the child in a high chair alone.
COMMENTS On Piece of Equipment I Am Evaluating			

III. The Household Manager

Infant Equipment Criteria - Ditto 66

Equipment	Hazards	Safety Features	Supervision & Use
BABY CARRIERS 	*1. Narrow base, slippery bottom surface.* *2. Placing carrier on slippery or high surface.* *3. Supporting devices on back which may collapse.* *4. No safety straps.*	1. Sturdy materials and wide, stable base. 2. Safety strap. 3. Nonskid bottom surface. 4. Supporting device which locks firmly in place. *Models costing under $5.00 are unsafe. This type of carrier has wire supports which are flimsy and unsafe.	1. Always stay with baby. 2. Always use safety straps 3. If bottom is slippery, attached rough surfaced adhesive strips. 4. When using carrier on high surfaces, make sure the child is within arm's reach and out of reach of dangerous objects. 5. Use the carrier only as intended-it is not a car seat. 6. Check supporting device to make sure it is firmly in place.
COMMENTS On Piece of Equipment I Am Evaluating			

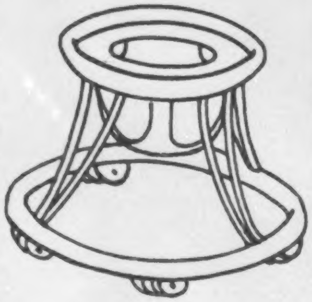
Equipment	Hazards	Safety Features	Supervision & Use
PLAYPENS 	*1. Too small a playpen for a growing child; baby shouldn't be able to crawl over the side or cause pen to tip over by leaning his weight against it.* *2. Mesh playpens with large open weave which child can use as toe-hold for climbing.* *3. Netting with weave large enough for buttons on baby's clothing to get caught.* *4. Protruding bolts, rough edges.* *5. Hinges which don't lock tightly.* *6. Large toys which can be used for climbing left in playpen.* *7. Slats which are loose or more than 2-3/8 inches apart.* *8. Weak floors; no padding on floor.*	1. Mesh netting with a very small weave smaller than tiny baby buttons. 2. Slats no more than 2-3/8 inches apart. 3. Firm floors with a foam pad. 4. Hinges that lock.	1. Bring playpen indoors after use outdoors. Rain water, and sun can damage it. 2. If slats are placed too far apart, interweave sheeting among them and fasten securely. 3. Remove large toys, bumper pads, boxes, or any objects which could be stacked and used for climbing. 4. If toys are hung from sides, be sure cord is short enough not to wrap around baby's neck-no more than 12 inches long. 5. Keep an eye on baby; be aware of what baby is doing

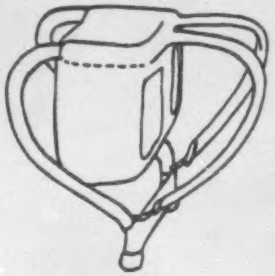
III. The Household Manager
Infant Equipment Criteria - Ditto 68

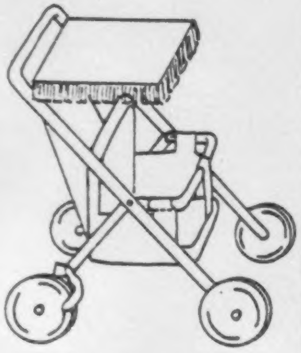
COMMENTS ON
Piece of
Equipment
I Am
Evaluating

III. The Household Manager

Infant Equipment Criteria - Ditto 69

Equipment	Hazards	Safety Features	Supervision & Use
BABY WALKERS 	*1. Tipping over when the baby is maneuvering over thresholds or throw rugs or when leaning, running, or reaching in the walker.* *2. Finger entrapment in the older x-frame walkers when the walker partially collapses.* *3. Falling down stairs when baby is unsupervised and stairs are unguarded.*	1. Stability-wheel base should be wider and longer than frame of walker. 2. Sturdy materials; unbreakable plastic or tough fabric seats with heavy-duty stitching or large rugged snaps. 3. Protective covers over coil springs and hinges, no sharp points, exposed screws.	1. Remain with baby while he/she is using the walker. 2. Prevent the child from running or leaning too far. 3. Make sure throw rugs are removed and stairs blocked. Help the baby maneuver over thresholds.
COMMENTS On Piece Of Equipment I Am Evaluating			

Equipment	Hazards	Safety Features	Supervision & Use
BACK CARRIERS 	*1. Using frame back carriers too soon- baby should be 4 to 5 months old, and able to hold head up.* *2. Unpadded frames near baby's face and head.* *3. Jolts to baby's neck.* *4. Baby slipping out of carrier.* *5. Joints that accidentally close and pinch.*	1. Padded covering over frame near baby's face. 2. Leg openings small enough to prevent baby from slipping out. 3. Leg openings big enough to avoid chafing baby's legs. 4. Look for strong stitching or large, heavy-duty snaps to prevent accidental release. 5. Seat belts.	1. Buy carrier to match baby's size and weight. 2. Always use restraining straps. 3. Be sure leg openings do not chafe baby's legs. 4. When leaning or stooping bend from the knees to minimize chance of baby falling out. 5. Avoid sharp points, edges, and rough surfaces. 6. Avoid joints that can accidentally close and pinch or cut the baby.
COMMENTS On Piece Of Equipment I Am Evaluating			

Equipment	Hazards	Safety Features	Supervision & Use
STROLLERS AND CARRIAGES 	*1. Inadequate or faulty brakes.* *2. Latches which don't hold securely.* *3. Sharp edges or exposed hardware; dangerous scissor-like mechanism.* *4. Canopy which doesn't lock firmly in place.*	1. Stroller should not tip over with child as far back as possible in it; test reclining back. 2. Firm vertical or nearly vertical back rest. 3. Firmly attached safety belt. 4. Tightly locking brakes; a two-wheel brake provides extra security. 5. Wide base and wheels with large diameters. 6. Canopy which locks in forward horizontal position and rotates to downward position in rear. 7. Shopping basket should be mounted in front of-or centered over-rear axle for stability. *A harness is preferrable to a safety belt if it is easy to use.	1. Check brakes before taking baby for a ride; use them when stroller is not in motion. 2. Make sure baby is safely strapped in. 3. Watch baby at all times; don't leave infant unattended. 4. If stroller or carriage is collapsible, check latch devices for security. 5. Don't allow other children to pull or stand in (or on) the shopping basket.

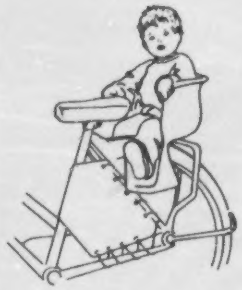
III. The Household Manager
Infant Equipment Criteria - Ditto 72

COMMENTS On Piece
Of Equipment
I Am Evaluating

III. The Household Manager

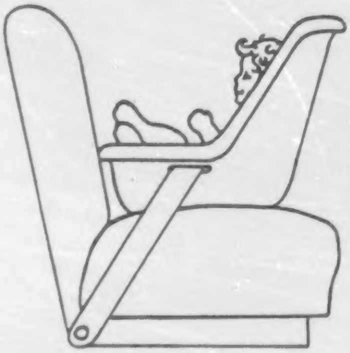
Ditto 73

Infant Equipment Criteria

Equipment	Hazards	Safety Features	Supervision & Use
BICYCLE CARRIER 	*Feet and hands being caught in spokes.* *Bolts attaching the seat to the bike vibrate loose.* *Head injuries from falling even when restraint is used.* *Standing up when not restrained.*	Must protect the hands and feet from spokes. A sturdy adjustable safety belt or harness. Rugged construction. Mechanically sound.	Safety belt should fit across the hips snugly. Infants under 6 months should not be a passenger. The infant's head is too soft. The adults riding a bicycle carrying a child should be an expert rider.
COMMENTS On Piece of Equipment I Am Evaluating			

Ditto 74

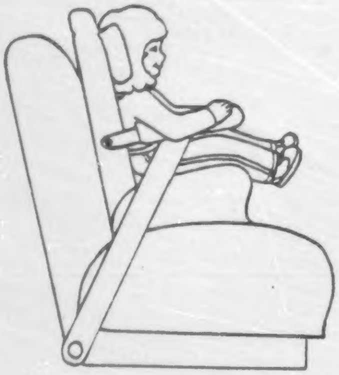
Infant Equipment Criteria

Type of Restraint	Weight or Age of Child	Guidelines
INFANT SEAT 	Newborn to about 20 pounds	The infant faces rear or sideways in a semi-upright position secured with a harness or a shield. The carrier is held down by a lap belt. The seat is well padded and firmly constructed. May have top anchor. *Car beds are unsafe.
COMMENTS On Piece of Equipment I Am Evaluating		

III. The Household Manager

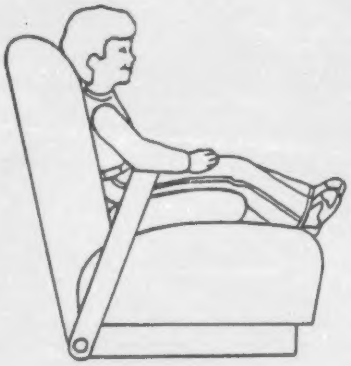
Ditto 75

Infant Equipment Criteria

Type of Restraint	Weight or Age of Child	Guidelines
CHILD SEAT 	Child from 20 to about 50 pounds	A well padded seat secured with lap belt 1½" wide. A shield or harness is used to restrain the child. The harness should have a crotch strap. If the seat belt touches the child raised sides should prevent the belt from pressing on the child. May have top anchor.
COMMENTS On Piece of Equipment I Am Evaluating		

Ditto 76

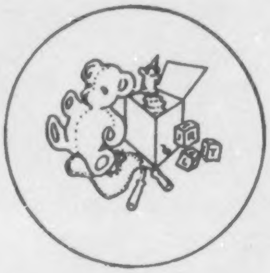
Infant Equipment Criteria

Type of Restraint	Weight or Age of Child	Guidelines
SEAT BELT 	Older and larger children over 40 pounds.	Belt should buckle firmly against hips not the abdomen. Use a hard cushion under the child to keep the belt low enough. If the child is over 4½ ft. tall use diagonal strap. A harness with a seat belt may also be used at this age. A label must state the harness must comply with motor vehicle standard 209, Type 3.
COMMENTS On Piece of Equipment I Am Evaluating		

277

Ditto 77

TOY EVALUATION SHEET



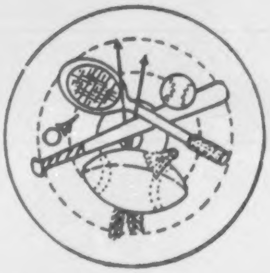
*Answer only the questions applicable to the toy you are evaluating.

What age level is or should the toy be recommended for? ____________

	Yes	No
Does the toy have a non toxic label?	____	____
Does the toy have an Underwriter Laboratory Label?	____	____
Is the toy of quality construction?	____	____
Is the toy of quality design?	____	____
Does the toy have sharp edges or points?	____	____
Does the toy have removable parts that could be swallowed?	____	____
Is the toy broken?	____	____
Could the toy be swallowed or pushed down the throat of a small child? (smaller than 1¼" x 2¼")	____	____
Is there a squeaker in the toy?	____	____
Could a small child bite or break off a piece of the toy?	____	____
If a doll or stuffed animal does it have eyes, pins, buttons, wires or pellets which could come loose?	____	____
Is the string on the toy longer than 12 inches?	____	____

Ditto 78

SPORTS EVALUATION SHEET



*Answer only the questions which are applicable to the sport's program you are evaluating.

	Yes	No
Are the students grouped by weight, skill and physical maturity?	____	____
Are the students "in condition" before competing?	____	____
Are the students coached by a person who puts safety above winning?	____	____
Are students protected with appropriate equipment?	____	____
Are the facilities and equipment for the sport good?	____	____
Do the students have adequate medical care available in emergencies?	____	____
Do the students have to have a physical exam before they are allowed to participate in the sport?	____	____
Are any drugs given to athletes before a big game? (or competition)	____	____

Ditto 79

The Home Lead Inventory

*Check the items you can find in your house, shed, garage, barn and yard that are listed below. They are possible sources of lead.

Car using leaded gasoline ______
Can of gasoline ______
Coal or oil furnace ______
House built before 1950 ______
Fungicides ______
Insecticides ______
Evaporated Milk ______
Wine ______
Cider ______
Shellfish ______
Lead Base Paint ______
Decorative leaded glass ______
Lead plumbing ______
Lead soldiers or figures ______
Sinkers for fishing ______
Silver painted baby cups ______
Toothpaste and medicine tubes ______
Pencils ______

III. The Household Manager

Ditto 80
(Continued)

Matches ____
Beads painted to look like pearls ____
Cosmetics containing lead ____
Cigarettes ____
Newsprint ____
Comics ____
Ceramic dishes ____
Ceramic cookware ____
Artist's paints ____

Total Checks ____

III. The Household Manager

Ditto 81

Household Poison Inventory

*Tabulate the number of items you find in each category of household poisons.

	Number Of Items
Hexaclorophene soap	
Laundry soap or detergents	
Dyes	
Bleaches	
Cleaning fluids, solvents	
Fabric softeners, conditioners	
Pesticides	
Solvents	
Paint thinner, turpentine	
Gasoline, oil	
Antifreeze, windshield cleaner	
Charcoal starter	
Paints	
Paint remover	
Kerosene	
Weed killer	
Varnish	
Rat, mouse poison	
Cement	
Glue	

III. The Household Manager

Ditto 82
(Continued)

Toilet bowl cleaner ______
Drain opener ______
Disinfectants ______
Deodorizers ______

Lotions, sprays ______
Ointments ______
Antiseptics ______
Toiletries ______
Baby powder ______
Cigarettes ______

ASPIRIN ______
Non prescription drugs ______
Prescription drugs ______
Laxatives ______
Rubbing alcohol ______

Total ______

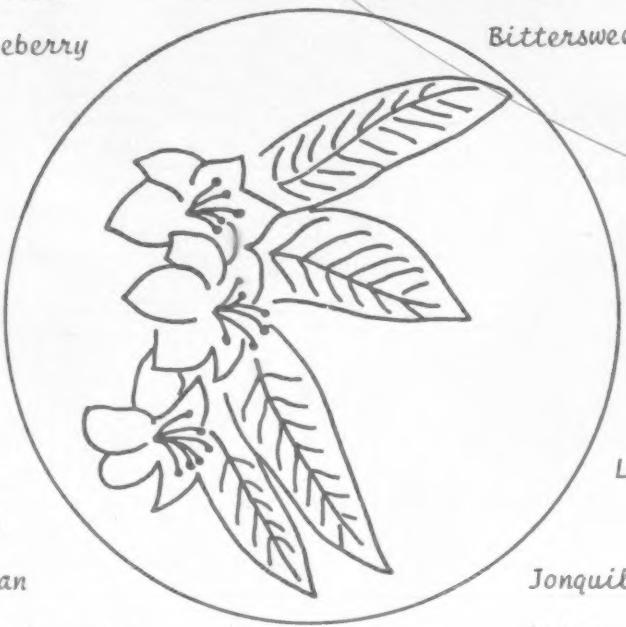
III. The Household Manager

Ditto 83

Delphinium
Mountain laurel
Some Mushrooms
Pokeweed
Pokeberry

Wisteria
Yew
Cherry seeds
Buttercup
Marsh marigold

Hemlock
Stinkweed
Holly
Poinsetta
Bittersweet



Arnica
Calla lily
Elephant ear
Philodendron
Castor bean

Black locust
Elderberry
Azaleas
Rhododendron

Larkspur

Mistletoe
Prayer bean
Dutchman's breeches
Daphne
Foxglove

Hyacinth bulb
Jessamine
Wile sage
Lily-of-the-valley
Daffodil bulb

Jonquil bulb
Nutmeg
Oleander
Sweet pea
Rhubarb leaves

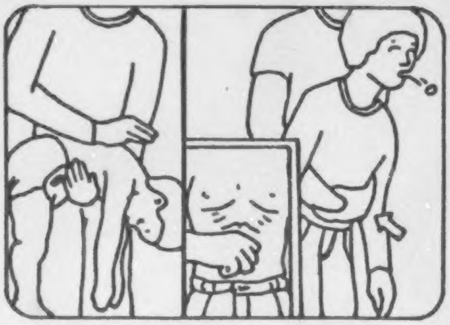
III. The Household Manager

Ditto 84

Poison Prevention

1. Parents should teach children never to eat any plants or parts of plants.
2. A parent should carefully follow dosage recommendations for prescription and over-the-counter drugs.
3. A parent should not emphasize the "good tasting" aspect of medicines.
4. Children should be told the truth about medicines: that too much can be harmful, that they are not candy.
5. Parents should not drink from bottles if they have young children.
6. Emergency numbers should be kept by the telephone. Poison Control Center should be on that list.
7. Household cleaners, maintenance items and medications should be purchased in "Safe Packaging" (child-proof containers). Aspirin poisoning has been cut in half since the passage of the Poison Prevention Packaging Act of 1972. Parents should learn how to resecure child-proof packaging.
8. Medicines and other poisons should be kept out of reach of children in locked cabinets.
9. Medicines and other poisons should be kept in their original containers. Mr. Yuk stickers can be put on all poisonous substances in the home and the child can be taught that what is inside is "Yuky".
10. Medicines should not be given in the dark.
11. Parents should not take medicine in children's presence.
12. Old medicine should be thrown away.
13. If a parent is using a poisonous substance and the telephone or door bell rings the parent should take the substance with them.
14. Parents should keep a poison emergency kit in the house and know what to do in accidental poisoning. A Poison Control Center should be contacted before acting.
15. Alcohol should not be overused for sponging a feverish infant. It can result in severe intoxication or even death from the infant inhaling alcohol vapors. Cool water is a safer coolant.

Ditto 85

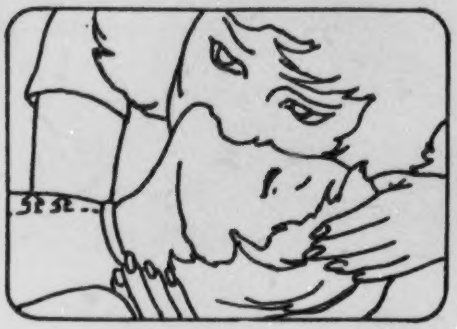


CHILD EMERGENCY SKILL #1 - *CHOKING*

1. If the child can't cough, speak, breathe:
2. Do not try to remove the object or make the child vomit.
3. Give child 4 forceful blows on the back between the shoulder blades holding child over the forearm if the child is small enough.
4. * Wrap arms around waist of child making a fist with one hand grasping the fist with the other.
5. Make a quick upward thrust between the navel and rib cage. Adjust thrust to child's size.
6. Repeat with 4 thrusts if necessary.
7. Alter blows to the back and thrusts.

* Steps 4-7 not recommended for infant or small child.

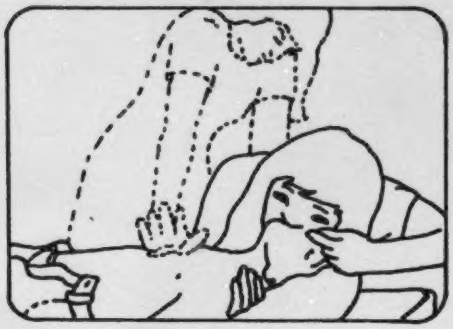
Ditto 86



CHILD EMERGENCY SKILL #2 - RESPIRATORY DISTRESS

1. Place child on their back.
2. Tilt the head back unless there is a neck or back injury.
3. Clear the mouth with cloth or fingers.
4. Place mouth over child's mouth and nose or mouth (pinching nose closed).
5. Give 4 quick-gentle breaths.
6. Give a new breath every
    - 3 seconds for an infant or small child
    - 5 seconds for an older child.
7. Remove mouth between breaths and listen for air leaving lungs.

Ditto 87



CHILD EMERGENCY SKILL #3 - *HEART FAILURE*

1. Check for 3 signs -
    * no pulse
    * no breathing
    * unconsciousness

2. Give mouth-to-mouth resuscitation.

3. Place tips of middle and index fingers on middle of sternum with other hand under child's back for infant or small child.

    Place heel of hand about 2 finger widths above the tip of the sternum.

4. Make short thrusts down toward the backbone
    - about 1/2-3/4 inch 100 times per minute for infant or small child
    - about 3/4-1/2 inch 80 times per minute for older child.

5. As fingertips or heel of hand begins to rise give artificial respiration. Do not remove fingertips or heel of hand when giving artificial respiration.

Ditto 88

CHILD EMERGENCY SKILL #4 - *CLOSED HEAD INJURY*

First aid in a closed head injury is watching the child.

What to watch for:	What to do:
Mild Head Injury - no vomiting - no loss of consciousness - no change in color	1. Watch for 48 hours for any of the more serious signs given below. 2. Apply cold compresses to the injury.
Moderate Head Injury - brief loss of consciousness - vomiting immediately after accident - recovery	1. Watch for 48 hours for any of the more serious signs given below. 2. Apply cold compresses to the injury. 3. Wake several times during the night to see if they can be roused. 4. Take child to doctor.

Ditto 89

(Continued)

SEVERE HEAD INJURY
(one or more signs)

- prolonged loss of consciousness
- persistent vomiting
- convulsions
- irregular breathing
- pale color
- bleeding from ear or nose
- repetitive eye movements, unequal pupil size, uncoordinated eye movement
- excessive drowsiness
- weak arm or leg, walk off balance
- speech problems
- severe headache

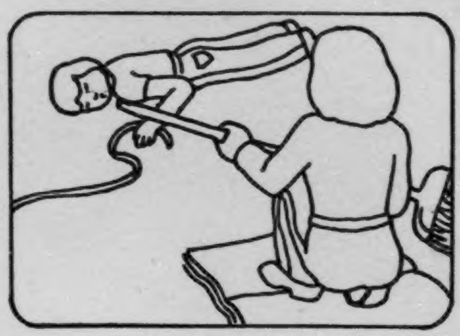
1. Take child to the hospital.
2. Elevate the head and neck on pillows.
3. Loosen collar.
4. Turn head to side.
5. Give no food or fluid.

*If any of these signs appear a month or later after the injury take child to the hospital.

CHILD EMERGENCY SKILL #5 - *BEE, WASP, HORNET or YELLOW JACKET STING*

1. Remove the stinger and venom sac by gently scraping sting. (Only the bee has a venom sac.)
2. Apply ice to sting.
3. Place a constricting band (not too tightly) above the sting.
4. Keep the sting below heart level.
5. Give medication from insect emergency kit.

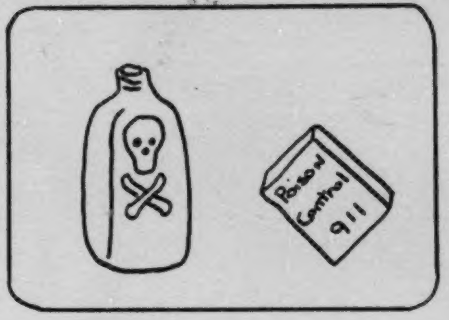
Ditto 91



CHILD EMERGENCY SKILL #6 - *ELECTRICAL SHOCK*

1. Remove fuse or unplug cord or knock wire down with dry wooden object.
2. Stand on something dry - cloth - wood - rubber - and push or pull child away from wire with dry wood, pole or loop of rope.
3. Give artificial respiration.
4. Massage arms and legs to stimulate circulation.

Ditto 92



CHILD EMERGENCY SKILL #7 - *POISONING*

1. Keep Syrup of Ipecac and Requa powdered charcoal in the medicine cabinet.

2. Keep number of Poison Control Center near the telephone. There are 560 such centers throughout the U.S. operating 24 hours a day. They are usually part of a hospital emergency room with a file of information on ingredients, toxicity, symptoms and recommended treatments for specific poisonings.

3. Watch for symptoms of child having taken poison
    - found with empty container
    - acts strangely
    - stains or burns around the mouth
    - vomiting, abdominal pain, drowsiness, rapid breathing, convulsions, unconsciousness.

4. Call Poison Control Center or doctor and give the name of the product or medicine or plant and the amount swallowed. (Call pharmacist to find out the name, strength and amount of medicine in the prescription.)

Ditto 93

(Continued)

5. Follow directions of physician. In general vomiting is induced except for petroleum and lye products. Ipecac induces vomiting and powdered charcoal in water absorbs leftover poison. The stomach is usually pumped for plant poisoning.

III. The Household Manager

Ditto 94

Action Checklist

As a parent of a growing child I will as Household Manager:

____ Develop a caring, loving, affectionate relationship with my child.

____ Be a "model" for safety attitudes and behavior.

____ Set limits for my child as well as explain why he or she must or must not behave in specific ways.

____ Make sure that "new adventures", "new undertakings" and "new explorations" for my child are well supervised under safe conditions.

____ Strike a balance between limiting for safety's sake and allowing my child new experiences and stimulation from the environment.

____ Seek help immediately if I find myself striking out repeatedly against my child verbally or physically or if I have a very negative feeling toward my child or my job of being a parent.

II. The Household Manager

Ditto 95

Action Checklist
(Continued)

____ Take parenting classes if I feel inadequate as a parent or have difficulty in carrying out my role as a parent.

____ Make time for my own interests, being alone and being just with the mother or father of my child.

____ Not use violence as a way of solving problems.

____ Report child abuse to the Department of Public Welfare and the police if I see or hear a child being abused.

____ Carefully select any baby sitters for my child and give them instructions and guidelines to follow.

____ Select equipment for my child which meets safety criteria and limit undue hazards.

____ Use a good restraint system (car seat) for my child as we take her or him home from the hospital and continue its use.

____ Use a restraining system for my growing child appropriate to their size in motor vehicles 100% of the time and use such a system myself.

____ Buy toys for my child which are well designed and well constructed, meet safety criteria and are appropriate to the age of the child.

____ Be sure that if my child is involved in sports they are adequately supervised by competent people who give safety a high priority.

____ Register a drug or insect allergy my child has with Medic Alert Foundation and have my child wear a Medic Alert Tag.

____ Do away with or reduce the specific household irritant or number of household irritants if I have an allergic child.

____ Renovate or repair my house if it was built before 1950 so that plaster and paint will not flake off.

Ditto 96

Action Checklist
(Continued)

____ Keep my house free of lead sources or keep them out of the reach of my small child.

____ Have my child between the ages of 1 and 6 tested for lead poisoning once a year. If I live in a section of the city where houses were built before 1950, live near a lead industry or near a heavily travelled highway test twice a year.

____ Have my child treated for lead poisoning and find and remove the source of lead in their environment if my child has an unsafe blood-lead level.

____ Not use leaded gasoline, unusual amounts of shellfish, evaporated milk, cider, lead base paint, lead plumbing or ceramics of questionable lead content.

____ Not give objects or articles containing lead to a small child.

____ Have my water supply tested for contamination by industry or agriculture if either of these sources of contamination is a threat.

____ Not use soap containing hexachlorephene on my infant or child.

____ Lock up or put out of reach all household poisons and medications when my child is young.

____ Keep medicines and other poisons in their original containers.

____ Label all household poisons and medications with Mr.Yuk stickers and emphasize the bad tasting and harmful nature of these substances.

____ Instruct my child to not eat plants or parts of plants outside or houseplants.

____ Buy Child-Safety-Packaging for as many household poisons and medications as possible.

Ditto 97

Action Checklist
(Continued)

____ Never give medications in the dark or more than what is recommended.

____ Not take medicine in my young child's presence.

____ Keep a list of emergency numbers beside the phone including the number of the nearest poison control center.

____ Not overuse alcohol or use water instead for sponging my child for fever.

____ Not give my child under 5 candy, gum, popcorn or nuts.

____ Give my small child only tender, finely cut meat.

____ Not prop my infant's bottle.

____ Keep small objects and toys out of the reach of my young child or infant.

____ Keep cords, strings and necklaces of any kind away from my young infant or child.

____ Knot and dispose of plastic bags in an outside garbage can.

____ Get rid of old refrigerators and freezers or take their doors off.

____ Try to buy a dryer, refrigerator and/or freezer with an inside handle.

____ Not allow my child to stand near motor vehicle exhaust.

____ Have household equipment checked periodically to make sure it is adjusted for efficient combustion.

____ Not take Hibachis, grills, lanterns, stoves into tents, campers or recreation vehicles.

____ Install smoke alarms in my home.

____ Have fire drills with my child.

____ Put Tot Finder stickers on my child's bedroom window.

III. The Household Manager

Ditto 98

Action Checklist (Continued)

____ Equip my home with a fire extinguisher.

____ Teach my child the drop-and-roll technique for extinguishing a body fire.

____ Keep electrical equipment in good repair and not overload circuits or extension cords.

____ Store flammable liquids away from the house and matches out of the reach of children.

____ Never leave an infant unattended on a place where they might fall even for a second.

____ Never leave children alone in my home until they are a very responsible age.

____ Have gates at the top and bottom of the stairs when my child is young and keep the stairs uncluttered.

____ Consider the inherent dangers to my child of mini-bikes, scooters, mopeds, motorcycles and skateboards before purchasing these "toys" for my child.

____ Have nonskid rugs and a nonskid mat in the tub.

____ Have safety latches on window, screens and storms particularly above the first floor of my home.

____ Allow only older children to sleep in the upper bunk (of a well constructed bunk bed).

____ Supervise my child under 5 near or in traffic.

____ Put protective caps or electrical tape over electrical outlets of my home when my child is small.

____ See that electrical equipment is grounded.

____ Not use lights on a metal Christmas tree.

____ Know how to administer First Aid for choking respiration failure, heart failure, a closed head injury, insect stings, electric shock and poisoning.

000 Bibliography

Action for Child Transportation Safety, Inc. This is the Way the Baby Rides, 1977.

Alexander, Jeffrey. "Physician Alert: Infant & Child Automobile Safety," Journal of the Indiana State Medical Association, June 1978, Vol. 7, No. 6.

American Academy of Pediatrics, Committee on Environmental Hazards. "Lead Content of Paint Applied to Surfaces Accessible to Young Children," Pediatrics, Vol. 49, No. 6, June 1972.

American Academy of Pediatrics. Standards of Child Health Care. Evanston, Illinois: American Academy of Pediatrics, 1972.

American Academy of Pediatrics, Committee on Accident Prevention. "Auto Safety for the Infant and Young Child," Statement, October 1974.

American Academy of Pediatrics, Committee on the Pediatric Aspects of Physical Fitness, Recreation and Sports. "Snowmobile Safety," Statement, December 1974.

American Red Cross, Cardiopulmonary Resuscitation.

American Red Cross. Advanced First Aid and Emergency Care. New York: Doubleday, 1973.

Arena, Jay M. "The Treatment of Poisoning." Clinical Symposia, Vol. 30, No. 2, 1978.

Arena, Jay M. and Miriam Buchar. Child Safety is No Accident. Durham (N.C.): Duke University Press, 1978.

Bartholomew County Child Abuse Council. Stop, Look and Prevent.

Bellanti, Joseph A. "Immunologic Responses to Chemical Pollutant," Pediatric Supplement, Vol. 53, No. 5, May 1974.

Berfenstam, Ragner. "Learning from Sweden's Experiences in Preventing Childhood Accidents." Pediatric Annals 6:11, Nov. 1977.

Bjorn, Karen and others. Lead: New Perspectives on an Old Problem.

Bleck, Eugene E. "Emergencies." Physically Handicapped Children - A Medical Atlas for Children, New York: Grune and Stratton, 1975.

Bond, Michael. "Mental Impairment Following Head Injury." Medical Aspects of Mental Retardation Ed. by Charles Carter, Springfield: Charles C. Thomas, 1978.

Caplan, Frank.(ed.) The Parenting Advisor, New York: Doubleday, 1977.

Caplan, Frank.(ed.) Parent's Yellow Pages, New York: Doubleday, 1978.

Carter, Charles G. Handbook of Mental Retardation Syndromes, Springfield: Charles C. Thomas, 1975.

Charles, Seymour. "Stepchild of American Pediatrics: Child Transportation Safety." Pediatric Annals 6:11, Nov. 1977.

Chisolm, Julian J. "Heavy Metal Exposures: Toxicity From Metal-Metal Interactions and Behavioral Effects." Pediatric Supplement. Vol. 53, No. 5, May 1974.

Clarke Outdoor Spraying Co., Stop Raising Mosquitoes.

Cohen, Michael I. "Environmental Exposures and Biologic Considerations of the Adolescent in Relation to Chemical Pollutants." Pediatric Supplement, Vol. 53, No. 5, May 1974.

Committee on Accident Prevention, American Academy of Pediatrics. Protect Your Baby, 1974.

Department of Health, Education and Welfare. Auto Safety and Your Child, 1978.

Department of Labor. Federal Register, "Occupational Exposure to Lead." (Attachment to the Preamble for The Final Standard.)

Department of Labor. Federal Register, "Occupational Exposure to Lead." (Final Standard), Nov. 14, 1978. Vol. 43.

Eden, Alvin. Handbook for New Parents, New York: Berkley Publishing Company, 1978.

Ehrenpreis, Theodor. Prevention of Childhood Accidents in Sweden, Goteborg: Palmeblads Tryecker: AB, 1973.

Engel, R.E. and others. Environmental Lead and Public Health, Environmental Protection Agency, March 1971.

Feinbloom, Richard.(Ed.) Child Health Encyclopedia, New York: Dell Publishing Company, 1975.

Finberg, Laurence. "Interaction of the Chemical Environment With The Infant and Young Child." Pediatric Supplement, Vol. 53, No. 5, May 1974.

Fontana, Vincent J. Somewhere A Child is Crying, New American Library, 1975.

Fort Wayne Board of Health. Lead Is Poison.

Fraser, Brian G. "The Tragedy of Child Abuse." Compact, March-April 1974.

Frazier, Claude A. "Diagnosis and Treatment of Insect Bites." Clinical Symposia, Vol. 20, No. 3, 1968.

Graef, John W. "The Prevention of Lead Poisoning." The Prevention of Genetic Disease and Mental Retardation, Aubrey Milunsky (ed.), Philadelphia: W.B. Saunders, 1975.

Green, Martin I. A Sigh of Relief, New York: Bantam Books, 1977.

Guide to Buying for Babies. New York: Warner, 1975.

Harvey, Birt. "Asthma," Physically Handicapped Children-A Medical Atlas for Children. New York: Grune and Stratton, 1975.

Henderson, John. Emergency Medical Guide, McGraw-Hill, 1973.

Illinois Association for Retarded Citizens. Coordinators Manual: Lead Poisoning.

Illinois Association for Retarded Citizens, HEW, Center for Disease Control. Medical Treatment Guide for Pediatric Lead Poisoning. (No date given.)

Indiana Board of Health, Cold-Weather Safety.

Jackson, Frederick. "The Pathophysiology of Head Injuries," Clinical Symposia, Vol. 18, No. 3, 1966.

Kemp, Henry C. and Helfer. Helping The Battered Child and His Family, Lippencott:

Kempe, C. Henry. "Approaches to Preventing Child Abuse." American Journal of Disabled Children, Vol. 130, Sept. 1976.

Lead Industries Association. Facts About Lead Glazes for Art Potters and Hobbyists, New York.

Lin-Fu, Jane S. "Childhood Lead Poisoning-An Eradicable Disease." Children, Vol. 17, No. 1.

Lin-Fu, Jane S. "Lead Poisoning in Children...A Preventive Illness." Prevention Notes, No. 3 (no date given).

Low, Merritt. "Accident Prevention: A New Approach in Pediatric and Parent Education." Pediatric Annals, 6:11, Nov. 1977.

Lubin, Harold A. "A Comprehensive View of Lead Poisoning: Methods of Detection and Prevention, and The Inter-Relationship with Mental Retardation and Developmental Status." Presentation: Ohio Prevention Conference.

Martin, Harold P. and others. The Development of Abused Children. (paper) Denver: University of Colorado Medical Center.

McIntosh, Joseph W. and Carolyn McQueen. (ed.) Child Abuse, A Guide for The Prevention of Child Abuse.

McNeese, Margaret C. "The Abused Child." Clinical Symposia, Vol. 29, No. 5, 1977

Mofenson, Howard and Joseph Greensher. "Controversies in The Prevention and Treatment of Poisoning." Pediatric 6:11, Annals, Nov. 1977.

National Association for Retarded Citizens. To Our Children's Children.

National Clearinghouse for Alcohol Information. NIAAA Information and Feature Service, IFS No. 52, Nov.23, 1978.

National Institute of Allergy and Infectious Diseases, Insect Allergy.

National Safety Council. Safety Education Data Sheet No. 66, Baby Sitting.

National Swedish Road Safety Office. Belts on-Common Sense & Compulsory after Jan. 1, 1975. Stockholm: Korrekt Reproductions.

Newill, Vaun A. "Nature and Sources of Pollutants." Pediatrics Supplement, Vol.53, No. 5, May, 1974.

Nordisk Trafiksikkerheds Rad. Report 11A Children in Cars. Stockholm: Department Offsetcentral, 1978.

Piomelli, Sergio. "Lead Poisoning." A Presentation at National Association for Retarded Citizens, Boston: Nov. 1978.

Piomelli, Sergio. "A Model for Lead Screening." Summit on The Prevention of Mental Retardation, Wingspread, Wisc.

Reichelderfer, Thomas. "How to Prevent Childhood Accidents." Pediatric Annals, 6:11, Nov. 1977.

Report to The Congress by The Comptroller General of The United States. Preventing Mental Retardation--More Can Be Done.

Rigby, E.P. and Henrietta Sachs. "Low Lead Levels and Mental Retardation." Lancet 1 (8008), Feb. 1977.

Scan. I Love My Children, But.

Schieffelin, John W. "A New Technique in Water Survival Training for Infants and Toddlers." Pediatric Annals, 6:11, Nov. 1977.

Shiller, Jack G. Childhood Injury, New York: Stein and Day, 1977.

Schmitt, Barton D. (ed.) The Child Protection Team Handbook, New York: Garland STPM Press, 1978.

Seattle Post-Intelligencer. Straps Save Baby, July 30, 1975.

Shapter, Robert K. and Members of the National Committee for Emergency Coronary Care. "Cardiopulmonary Resuscitation: Basic Life Support." Clinical Symposia, Vol. 26, No.5, 1974.

Steele, Brandt F. Child Abuse: Its Impact on Society, presentation at Riley Hospital for Children, Oct. 1964.

U.S. Consumer Product Safety Commission. Because You Care For Kids.

U.S. Consumer Product Safety Commission. Fact Sheet, No. 43, "Crib Safety," May, 1977.

U.S. Consumer Product Safety Commission. Fact Sheet, No. 47, "High Chairs," May, 1977.

U.S. Consumer Product Safety Commission. Fact Sheet, No. 47, "Toys," May, 1975.

U.S. Consumer Product Safety Commission. Fact Sheet, No. 7, "Bunk Beds," May 1976.

U.S. Consumer Product Safety Commission. Fact Sheet, No. 20, "Infant Falls," May 1978.

U.S. Consumer Product Safety Commission. For Kid's Sake.

U.S. Consumer Products Safety Commission. It Hurts When They Cry, 1976.

U.S. Consumer Product Safety Commission. Product Safety Fact Sheet, May 1978.

U.S. Department of Commerce. Smoke Detectors, Dec. 1976.

U.S. Environmental Protection Agency, Is Your Drinking Water Safe?, March 1977.

Valusek, John E. People Are Not For Hitting, Wichita, Kansas: 1974.

Wittorp, Birgitta and Karin Lund. "Children's Policy in Sweden." Current Sweden, No. 115, May 1976.

THE MOTHER AND FATHER
OF THE GROWING CHILD
IN THEIR ROLE AS

TEACHER

IV. The Mother and Father of The Growing Child In Their Role as "Teacher"

Their Responsibility in The Prevention of Mental Retardation In The Next Generation

Objectives

GENERAL

- a. *The student will understand that parents have an important role to play as teachers of their children especially in the preschool years.*
- b. *The student will understand that parents have a tremendous impact on the intellectual and emotional development of their child.*
- c. *The student will understand that a child's pattern of learning is determined in the years when the parents are for the most part the sole teachers of the child.*
- d. *The student will know that mental retardation caused by an environment which is unstimulating is preventable.*
- e. *The student will understand that children follow a sequential development.*
- f. *The student will understand that a child with serious developmental lags needs further evaluation and help.*
- g. *The student will understand that if parents cannot provide a stimulating, nurturing environment for their child they must seek help in providing those experiences for their child.*

SPECIFIC

Cognitive

1. The student will be able to state the time of life in which a child learns more than in any other time of life.
2. The student will be able to give the percentage of retardation caused by the lack of a stimulating environment.
3. The student will be able to state which category of retardation must be prevented if there is to be any significant reduction in mental retardation.
4. The student will be able to explain how the neurons of the brain are stimulated.
5. The student will be able to explain how brain cell assemblies are developed.
6. The student will be able to demonstrate how to use a developmental scale to choose experiences and activities appropriate to the age of the child.
7. The student will be able to explain why a developmental scale should not be considered a rigid timetable of performance.
8. The student will be able to list two (2) ways in which motor experiences for the young child will enhance intelligence.
9. The student will be able to explain how emotional development can mask potential intelligence.
10. The student will be able to state what quality of a relationship is essential to the management of behavior as a medium of exchange.
11. The student will be able to outline three (3) things necessary for the development of language in a child.
12. The student will be able to explain what kind of environment parents must prepare for their child for mental development.
13. The student will be able to illustrate how an understanding of a child's sequence of development can aid in determining if a child needs special experiences for optimal development.
14. The student will be able to list three (3) ways in which parents can obtain help in providing their child with the stimulation and nurturance they need to develop their intelligence.

Affective

1. The student will feel that parents have an important role to play as teachers of their child or children especially in the preschool years.
2. The student will feel that parents have a great impact on the intellectual and emotional development of their child.
3. The student will feel that patterns of learning are established in the years before a child's "formal" education begins.
4. The student will feel that mental retardation caused by environmental deprivation is preventable.
5. The student will feel that knowledge of children's sequential development is valuable to determine developmental lags in children and as a guide in choosing activities and experiences for a child.
6. The student will feel that if a child has a definite developmental lag a parent should seek help.
7. The student will feel that it is important to seek an environment that provides stimulating experiences for their child if they cannot provide such experiences themselves.

Background Information for the Teacher

THE RIGHT TO A GOOD START IN LIFE

The child has been born well, fed well, is free from disease and infection and is being raised in a safe environment. All of the child's physiological systems are ready and intact for learning. But the parents must still play another role if the child is to grow and learn and be an intelligent, well adapted human being...the role of teacher.

Gazing upon the infants neatly lined up in their plastic bassinet and with their standard blue or pink blanket the newborn infants appear to be so alike, so ready for love and learning. But from their standard bassinets and blankets each will soon go home to very different worlds, very different environments. Those minds are in the body of an infant, the infant goes into a home, the home is in a community and that community is in a particular culture of the world. But within that body, within that mind is all that the child will become.

Yet our society does not educate its citizens to assume their parental role, the role of nurturing and raising the next generation. Many young people have never even been exposed to "taking care of" young children before they have their own.

An extensive national survey of school achievement in the United States concluded that the home influences far outweigh the contribution made by the schools to the variation in children's school achievement. Many studies and individuals have made the same conclusions especially in relation to the early childhood years of the child. Parents have a tremendous impact on the intellectual development of their child...either positive or negative, for a child learns more during the earliest years of their life than during any other comparable period of life. Considering what a child knows when he or she is 17 years of age...

... *50% of the child's intellectual development has taken place between conception and age 4.*
... *30% of the child's intellectual development has taken place between ages 4 and 8.*
... *20% of the child's intellectual development has taken place between ages 8 and 17.*

Children start to learn long before they become "formally" involved in a "system of education."

... The child of 3 has learned one or more languages and the capacity to understand that language.
... By 2 years of age the way in which a child interacts with people, their social and emotional development has crystallized into their basic social pattern.
... By 2 the curiosity of a child which is so intense the first 9 months of life has been either encouraged or discouraged laying the foundation, whether positive or negative, for her or his intellectual curiosity throughout life.
... By 3 the child's foundation of cognitive intelligence, the way in which they learn and attitudes towards learning have been formed.

Yet not more than one in ten children in the United States get off to as good a start in life as they could. Why? Because obstacles stand in the way of good parenting.

1. Ignorance. Parents may not understand the developmental stages of children and their role in moving the child through those stages.
2. Attitude. Parents may not realize the great importance of their role as parents.
3. Stress. Parents may not know before they become parents that raising a child is stressful and requires

an unlimited amount of time, energy and just plain hard work.

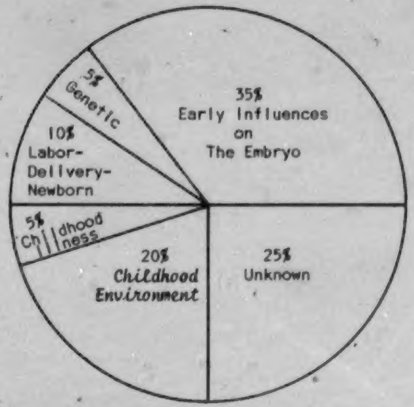
4. Lack of Assistance. Today with a 30 to 50% divorce rate (depending on the area of the country) the child is often lacking in support both emotionally and financially in the growing years. The mobility of society does not allow for the larger constellation of "family" - grandmother, grandfather, aunts, uncles, and so on to help with child rearing as was done 50 to 100 years ago. Lack of assistance comes in another form - the lack of parenting education in the schools and community and general inadequate assistance for parenthood, especially high risk parents.

All of these obstacles which do not allow children to get off to a good start can be overcome. Most families, if they are given a little help are potentially capable of doing a good job of raising children.

HOWEVER, THE LACK OF THE RIGHT TO A GOOD START IN LIFE IS A MAJOR CAUSE OF MENTAL RETARDATION.

Consider the pie of causation..

Figure 59. The Pie of Causation.



At least 20% of mental retardation is caused by the child's environment which fails to lay the foundations of cognitive learning. Theoretically it is a totally preventable cause of mental retardation.

Most mental retardation caused by a poor childhood environment is in the mildly retarded range. This is evident if you look at the breakdown of causation related to the range of mental retardation.

Figure 60. The Breakdown of Causation Related To The Range of Mental Retardation.

Cause of Mental Retardation	Mental Retardation Classification		
	severe/profound	moderately	mildly
Genetic	90%	33%	5%
Physiological Insult or injury		38%	10%
Environmental-Psycho/social	1%	1%	40%
Unknown	9%	28%	45%
Percentage of Total Population	0.73	0.13	2.14

The mildly retarded make up the majority of the mentally retarded. They are mentally retarded because of a poor psychological and social environment. Mental retardation is to a considerable extent a socially determined category particularly for the mildly retarded. Three out of 4 people who are mildly retarded were raised in a poor environment. A contrast of the severely retarded and the mildly retarded further illustrates this point.

Figure 61. Contrasts Between The Severely/Profoundly Retarded and The Mildly Retarded.

Severely Retarded	Mildly Retarded
Physical signs	No physical signs
Abnormal medical findings	No abnormal medical findings in 80% of mildly retarded
Cause of retardation diagnosed	Cause of retardation unknown
Early diagnosis of retardation	Late diagnosis of retardation
Found in any segment of society	75% pocketed in poor segments of society
Classified retarded throughout life	Classified retarded only while in school

Probably 85 to 90% of mild retardation not involving identifiable cause is associated with an environment of poverty, racial and ethnic discrimination and family stresses. The role of the child's environment is so important that dramatic changes in a child's living experiences can change his or her

- *intelligence*

  and
- *adaptive behavior.*

Any significant reduction of mental retardation depends on the prevention of MILD retardation. The cost of adults who are

- severe underachievers
- unproductive
- striking out against society
- withdrawing from society
- dependent on society

is astronomical. Investment in prevention programs is both humanistically and economically sound.

WHAT IS THIS THING CALLED INTELLIGENCE ?

Intelligence, like fire, electricity and the wind is much easier to measure than to define. There are many themes common to many definitions. These themes seem to divide themselves among *input*, *integration* and *output*.

Figure 62. The Division of Themes Common to the Defining of Intelligence Divided Into Input, Integration and Output.

Input	Integration	Output
Capacity for understanding	Abstract thinking	Adaptive behavior
Capacity to learn	Conceptual thinking	Knowledge learned
	Thinking rationally	Ability to adjust or adapt
	Intellectual skills	
	Capacity to think through problems	
		Acting purposefully
Increasing knowledge	Capacity to form judgments	Dealing efficiently with the environment
Taking information from the environment	Organizing and building structures of knowledge	Drive and incentive
Stimulating the senses	Involves memory and imagination	Capacity to make decisions
Perception	Formulating ideas	Scholastic achievement
		A response to stimulation
		Brain control over motor responses
		What tests test
		Number of alternative responses

It becomes evident that intelligence has "something" to do with taking in information from the environment, doing "something" with that information in the brain and then making "some" kind of a response. This complex of traits seems to be grouped not by nature but by theoriticians. These theorists also try to measure intelligence which largely defies even definition. It is also assumed that this attribute of intelligence varies in amount from one individual to another. But even though it is difficult to precisely define intelligence the process of learning-input, integration and output is rather precise biologically speaking.

INTELLIGENCE IS SPECIFIC

The knowledge a child gains from each and every experience must be integrated into a dynamic structure within the brain that will enable him or her to make increasing complex responses. Learning is definitely associated with changes in the structure of the brain. These changes can even be seen, photographed and measured the first two years of life. Growth of intellectual capacity in the child matches chemical and physical changes in the brain.

The basic learning process. From birth on there is a continuous input of stimuli from the environment entering the infant's brain from every one of the senses - seeing, hearing, touching, tasting, smelling and moving in space. New information is bombarding the infant at a phenomanal rate. The infant begins to use the neurons which they have developed at the rate of 20 thousand per minute from conception to birth. The neurons increase in size, the axons develop their protective covering and *the neurons sprout and grow millions of pathways to connect with other neurons and consciousness emerges.* Learning is a physical and chemical process. The experiences that a child has are expressed in terms of changes in the biochemistry, architecture and electrical responses of the brain. Learning is the establishment of new pathways within the brain. Growth of intellectual capacity matches that of brain complexity and connectivity. The stages in intellectual and behavioral development are in parallel with brain development. The development of intelligence or learning is not abstract or theoretical. It is biological.

An example.

1. *The infant experiences a variety of sensory inputs related to an event.*

The infant lying in the bassinet hears a door slam, the approaching footsteps are different than her mother's and the voice she hears is deep. She hears the voice talking to the voice she hears while being fed. A face leans over the bassinet and kisses her. The face has a smell all its own, a feel that is rougher than the face of the one who feeds her and is with her most of the day. The deep voice asks "How's my girl today?" The face then looks at the infant and talks to the one who is with her all day. The light in the room around the infant is dim for this face always arrives home when the sun is setting. There is the smell of dinner cooking which is different from all the smells the infant has experienced this day. The soft face says "This is your Daddy. Daddy has missed you."

2. *As a deluge of experiences related to this event take place a network of brain cells is established by stimulating the neurons.*

The infant is taking in information through the senses about the smell, feel, visual image, sound, time of arrival, relationship to the mother and relationship to her life of the father. Each of the senses relays information about this event, the homecoming of the father to different areas of the brain that receive information from a particular sense. A network of information about the father is established by the growing of the dendrites, firing of the synapse and extension of the axons.

3. *As an experience is repeated the stimulated neurons begin to establish a closed system in which interconnections are made with amazing speed in minute amounts of time. Transmission of an impulse across many synapses has become easier.*

The infant hears the door open at a particular time of day or hears her Daddy's voice and instantly interconnects previous perceptions of what Daddy is like, when he is there, what part he plays in her life to his voice or the door closing.

4. *The elaboration of cell assemblies becomes more complex. The more experiences a child has the more neuron associational patterns will be developed and the more interrelated they will become. A network of neurons fire as a unit while continually adding new transmissions, new connections to other neurons which are excited and fire as new information is received by the brain.*

The child's first perceptions about Daddy become stored information and can be recalled and integrated instantly as the child continues to "experience" not only what her Daddy is like but what the characteristics of other daddies are like, what daddies are in the scheme of the family, community and the world. Daddies are continually experienced by the child in a new context.

The complexity of man. One of the capabilities that differentiates man from other animals is the ability to make complex integrations of the auditory, visual and tactile information received from the environment. This cross modality association is possible because of a highly developed ANGULAR GYRUS which is where the junction of the auditory, visual and tactile areas of the brain meet. It is in this area where cross associations are made. Figure 63 outlines in a very simplistic way the sensory intake, brain reception, integration and output process.

Figure 63. Sensory Input, Reception, Integration and Output Process.

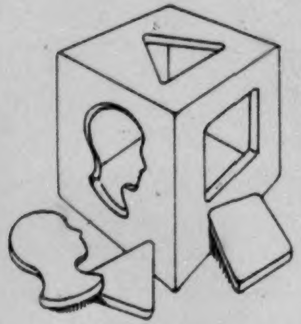
Peripheral Nervous System	Central Nervous System		
Sensory Input	Reception	Integration	Expression
Stimulus Receptors	*Sensory Neurons*	*Association Neurons*	*Motor Neurons*
Seeing Hearing Smelling Tasting Touching Moving through space	Recognition Attention Discrimination Categorization Simple figure-ground	Complex categorization and discrimination Complex figure-ground Closure Sequencing Imagery Association Logic Reasoning Interpreting Abstracting	Symbols & words are attached

The largest group of mentally retarded children who have mild intellectual deficits (between 55 and 70 IQ) are not mentally retarded because of inadequate basic physiological structures but because they have not had an opportunity to experience many perceptions in a variety of ways within their environment. Weak and inadequate neuron associational patterns which are very limited in scope are the result of inadequate sensory input both in terms of quality and quantity. Such a child's alternatives for response to a stimulus are very limited. In fact the greater the degree of mental retardation the fewer alternative responses a child has.

The implications of brain physiology in the prevention of mental retardation.

1. Experiences (education could be defined as sequential experiences) affect the structure and development of the central nervous system.
2. The infant and young child need a large variety of experiences to form patterns for later information processing using associational networks.
3. The quality of the young child's experiences is important.
   - Consistent and clear stimulus patterns develop attention which is the first skill necessary for learning.
   - Irrelevant stimuli need to be decreased in the child's life so that he or she can focus on a specific stimulus.
   - Associations between perceptions need to be explicitly explained and shown to the child.
   - The nature of an experience must be nurturing. Abuse is an experience but love is a nurturing experience.
   - The timing of experiences must be suited to the maturation of the central nervous system. Also the brain is more plastic in a young child. Critical periods of learning may be lost if children are not provided with experiences for learning at the appropriate age.
   - The duration, intensity and number of experiences will determine how many and how well cell networks are established.

John Meier summarized the importance of network building when he stated, "Where else can one find a computer containing more than 10 billion flip-flop circuits, occupying less than a cubic foot of space, operating on the energy of a peanut for 4 hours, being totally mobile and produced with unskilled labor."



HOW IS INTELLIGENCE MEASURED ?

Measurable intelligence is what a test tests. Measurable intelligence is not constant, it can change. Intelligence has become equated with the ability underlying scholastic achievement. Measurable intelligence is a good predictor of academic achievement. To understand some of the limitations and also some of the possibilities of intelligence testing it is necessary to have a feel for how the concept of measuring intelligence developed and to look at a person who more than any other differentiated the attribute of intelligence as it is today.

Figure 64. The Development of Educational Measurement...A Time Line.

Year	Event	Comments
1840	Horace Mann's 154 questions	Horace Mann, head of the Massachusett's Board of Education had 30 teachers prepare an examination of 154 questions to test student progress.
1845	Boston Survey	The Boston School Board tested students for scholastic achievement.
1860	James Cattell American Psychologist	Sought to describe human nature in respect to intellectual range and variability testing 10 sensory discriminations. He coined the word "Mental Testing."
1882	Francis Galton England	In his Anthropometric Lab Galton measured physiological responses to color, vision, hearing and reaction time. His Hereditary Genius argued the cause of total genetic determination of intelligence.
1895	J. M. Rice	Tested in the schools in a number of cities.
1896	Alfred Binet and Victor Henri	Assess eleven distinct facilities-attention, comprehension, imagery imagination, memory, suggestibility, esthetic appreciation, moral sentiments, strength of will and motor skills.
1904	Alfred Binet	Conceived intelligence as a global human performance relating performance to age. Was commissioned by the French Minister of Education to develop a test to determine what children would be better educated in a separate facility.
1905	Alfred Binet	Published in Paris, as what is acknowledged the first real test of intelligence. It contained 30 tests arranged in order of difficulty sampling a variety

		of complex mental functions of judgment, comprehension and reasoning which Binet conceived as intelligence.
1908	H. H. Goddard	Translator and advocate of The Binet Scale in the United States. This director of The Vineland Training School for the retarded in New Jersey went far beyond the claims of Binet viewing intelligence as a single unitary factor.
	Binet Revision	At this time Binet improved his scales using 58 tests grouped unequally into clusters for each age level 3 to 13 years of age using the term Mental Age.
1911	Binet-Simon	The final scale was made up of 5 tests at each age level 3-15 years of age and included 5 tests for adults. Binet viewed intelligence as a complex interaction among a variety of discrete higher mental functionings.
1916	Lewis Terman	At Stanford University, standardized and revised the Binet test. Now known as the Standford-Binet Intelligence Test. Terman believed as did Binet that innate intelligence could not be measured apart from learned behavior.
1920		Intelligence and the Intelligence Quotient was viewed as very rigid, definite and unchangeable in the United States.
1914 thru 1930	Army Alpha Alpha Beta	Group intelligence tests were used to determine suitable candidates for the draft.
1937 thru 1973	Standardization of the Binet Intelligence Test	Standardization of the norms for the Binet carried out on a broad sampling of children.
	Aptitude Tests Achievement Tests	The boom in measurement began following massive testing for the draft. Aptitude, achievement, intelligence, personality and psychological abnormalities were all part of the measurement picture.
		Unfavorable reactions began to emerge against the testing field but its growth continued particularly in the field of guidance.
1939	David Wechsler	The Wechsler-Bellevue Intelligence Test was developed by Wechsler who was chief psychologist at Bellevue Psychiatric Hospital in New York. Subsequently he developed the Wechsler Intelligence Test for Children in 1949, The Wechsler Adult Intelligence Scale in 1955 and The Wechsler Preschool and Primary Scale of Intelligence in 1967. The Wechsler compares a child only with others of the same age group and a separate IQ is figured for verbal and performance.
1941 to 1977		Testing continued to increase in use in education, business and industry.
1979	Individual Rights	Criticism of testing aimed at its limited scope, its invasion of privacy and overuse. Parents are given the right to decide as to how and when testing will be used with their children. Intelligence testing for placement must be accompanied by measurement of adaptive behavior.

7. *VOCATIONAL ACTIVITY.*

8. *SELF DIRECTION* including initiative, perserverance and leisure time.

9. *RESPONSIBILITY.*

10. *SOCIALIZATION.*

The second part of the scale measures maladaptive behavior related to personality and behavior disorders. These maladaptive behaviors are

1. *Violent and Destructive Behavior*
2. *Antisocial Behavior*
3. *Rebellious Behavior*
4. *Untrustworthy Behavior*
5. *Withdrawal*
6. *Stereotyped Odd Mannerisms*
7. *Inappropriate Interpersonal Manners*
8. *Unacceptable Vocal Habits*
9. *Unacceptable or Eccentric Habits*
10. *Self-Abusive Behavior*
11. *Hyperactive Tendencies*
12. *Sexually Aberrant Behavior*
13. *Psychological Disturbances*
14. *(Use of Medications)*

The AAMD Scale of Adaptive Behavior does not have a particular cut-off point at which a child can be considered to have retarded adaptive behavior. Evaluating the results and making placement decisions requires interpretation of the social functioning in school, home and the cultural environment.

In a very real sense parents and children have created intelligence and intelligence testing, for scales are developed around what experiences parents have provided for their children and what children have learned at various ages and/or how they compare to other children. To this extent then intelligence testing is real but intelligence remains inadequately defined. Perhaps for the majority of children labeled retarded it would suffice to say that these children have not had experiences either in quality or quantity or experiences properly sequenced.

WHY ARE CHILDREN BECOMING LABELED MENTALLY RETARDED FROM A LACK OF EXPERIENCES ?

Lack of childhood experiences can be related to two types of deprivation.

1. Deprivation associated with poverty.
2. Deprivation occurring at any economic level associated with a distorted or insufficient relatedness of the child to the parent or parents.

#1. Deprivation Associated With Poverty.

Among the millions of individuals who are retarded those with precise, biological causes are a minority. *Seventy-five percent* of those labeled mentally retarded are living in conditions of poverty. There are more poor Whites than Black, Chicano, Indian and Orientals although proportionately more Blacks are living on poverty incomes. Children living in families with incomes under $3,000 per year have 3 times the illiteracy rate than the national average. Those living in families with an income between $3,000 to $5,000 per year have 2 times the illiteracy rate than the national average. Sixty-five percent of school dropouts come from families whose income is under $5,000 per year. You don't have to be poor to be labeled mentally retarded but a child born into such an environment is definitely at risk for not having the quality or quantity of experiences at the proper time in her or his young life to stimulate the neurons of the brain to make the elaborate connections of axons and dendrites necessary to develop complex pathways for the process of higher levels of thinking. It is like inadequately programming a computer and then trying to get it to do complex operations. In today's world there is inflation in the "commodity of intelligence." It takes more intellectual capability for survival than it did 100 years ago because of the highly technical and competitive nature of the world of work and just plain living in the United States.

A Picture. The odds against a child born into poverty are overwhelming. Enumerating the odds they seem almost insurmountable. The odds are outlined in figure 65, The Interaction of Factors in the Cycle of Poverty.

Figure 65. Interaction Factors in The Cycle of Poverty.

Adult ⇨	Young Child ⇨	Older Child
Lack of supportive relationships because of no father in the family. Stress on the mother is unbearable. May have too many children born too close together and family started at too young an age. All adults in the family work. Household is disorganized and chaotic or organized but allows little time or energy for child interaction so the child is just "looked after." The need to survive is more pressing than needs of child. Defeated, resigned, apathetic. Feel no control over their life or the life of their child. The expectations of the child are minimal. Inadequate health care. Malnourished. High risk housing for poisoning and accidents with minimum of space and play area.	Fragmented mother-child relationship because of the demands on the mother. Little verbal interaction with adults and much of it may be negative. Not helped through frustrations. Not rewarded for small steps of progress. Limited experiences with objects, materials and particularly school type materials. Limited play environment both in quality and quantity. Cannot observe good adult interaction because of limited ratio of adults to child in family. Valuable learning time is lost during the critical periods of development. Poor child care facilities in the neighbor-	Home is a place to escape from. Cannot profit from the educational system so withdraws from it. Forms a counter-system or counter-culture where success and approval are possible. Distrusts authority figures. Withdraws from authority. Impulsive - lives for the moment. In the learning situation is passive - failure is too threatening. Is depressed, discouraged. Gives up, daydreams, "gets by." Feels powerless. Survival is important, not learning. Educational facilities for the child may be substandard physically and psyhcologically.

hood for child of working mother. Environment is too stimulating--noisy, unstructured, many caretakers--but not of the right type so child does not learn to focus on main stimulus and later to concentrate. Not allowed to participate in experiences until he or she can really handle them... not allowed to learn by doing. Controlled by authority and punishment not by self discipline and logic. Harsh discipline and violence in the environment may interfere with child's trust relationship with people. Passive quiet child valued for they are easier to get along with. Inadequate health care. Malnourished. Poisoning and accidents more frequent.	Limited education and training leads to limited income.

THE CYCLE BEGINS AGAIN.

Superimpose this cycle of poverty on risk factors before, during and immediately after birth plus many of the roles inadequately played by the parents as dietitian, doctor and household manager. The risk of the child becoming mentally retarded or functioning as a mentally retarded individual is great. Improvement in the environment of the present generation might expect to be felt only when these children have children. An environment of poverty accumulates across generations and it cannot be expected that improving the environment of a single generation will overcome the devastation of a child coming from generations of poverty. The neglect of young children will not be cheaply or quickly repaired.

#2. Deprivation Associated With a Distorted or Insufficient Relatedness of Infant to Parent.

The quality of the emotional climate in which a child is raised is probably more important for the intellectual growth of the child than any other single child rearing technique. Environmental retardation can occur in infants living in homes of any economic level. Insufficient warmth, contact, respect, love and intellectual stimulation can produce a child who appears to be organically mentally retarded. The relationship of the child to the mother/father or primary caretaker can be deprived because of:

1. A *distorted* relatedness in which the parent or parents are using the child to work out their own problems.
2. *Insufficient* relatedness in which the parent or parents are cold, indifferent, antagonistic, overburdened, neurotic, psychotic or involved only in their own needs or pleasures and provide the child with no warmth, stimulation and responsiveness.
3. A *discontinuity* (whether actual or physical) in relatedness or interaction between the parent or parents and child. A separation of the child from its mother or primary caretaker the first two or three months of life rarely disturbs the infant if she or he have a good mother substitute but a separation from 6 months to a year is especially disturbing to the child. Separation after the first 4 years of life is less disturbing for the child is less dependent, understands reality to a greater extent and realizes that an object that disappears will reappear.

Infants raised in an understaffed institution can become severely retarded and even die from lack of affection and handling but maternal deprivation can take many forms-sensory, social, emotional-in a whole range of intensity from mild to severe. Prolonged and severe deprivation lasting from the newborn period and continuing until the 3rd year of life usually leads to severe retardation that is not reversible.

Specific processes affected by deprivation are:

1. Language. Language does not develop in a vacuum but requires models, hearing a great deal of language to extract the rules of the language, and someone to talk with who is responsive and rewarding.
2. Personality. The child may feel punished, rejected, lonely and confused. Later as well as early in life the child will not be able to form meaningful interpersonal relationships.
3. Learning. Lack of focusing on the mother as a rewarding person in his or her world may cause attention, concentration and motivation deficits in the child.
4. Growth. Even with good food intake growth may be stunted because of sleep disturbances which inhibit the secretion of the pituitary gland containing a growth hormone.

One of the common but least well known causes of maternal deprivation besides the lack of bonding discussed under "The Mother and Father of The Newborn" in Volume I of Towards The Prevention of Mental Retardation in The Next Generation is the lack of feedback to the mother from an infant who is unresponsive, irritable or apathetic. Every infant is very different from the moment of birth or before. Some prefer auditory stimulation, others visual. Some babies can handle many kinds of stimulation at one time while others cannot. Some infants respond more vigorously to stimulation than others. Each infant starts life with a different set of inherited characteristics as well as a different birth and life inside the uterus. If an infant is unresponsive, irritable and apathetic when a mother was counting on just the opposite the mother may feel resentful and frustrated. As a result she is less responsive to the infant and interacts less with her infant. A whole cycle of rejection and deprivation sets in which could be averted by some expert help and guidance for the mother at birth.

Although deprivation of a child whether it be from lack of a stimulating environment or lack of a good interpersonal relationship with the mother or caretaking figure of a child are major causes of mental retardation and there are a number of prevention techniques that can be used by parents in their role as teacher to prevent mental retardation in their growing child.

PREVENTION OF ENVIRONMENTAL MENTAL RETARDATION

#1. *Parents who are unable to provide adequate stimulation and good care for their infant should find a quality infant and child care program for their child to help them in their home or outside of the home or both. This quality help must start early-at birth-and be continued until the school years.*

In the Kibbutz System of Israel where infants and children are cared for in a group giving them early stimulation, group socialization and "substitute parents" for the working hours of the day the children rarely function at a mentally retarded level even though many of their parents come from generations of poverty and illiteracy.

In an intervention program known as the Milwaukee Project a group of infants whose mothers had an IQ of under 70 were given a structured program of stimulation on a full day, 5 day a week basis throughout the year from 4 weeks of age until school age while their mothers received training in homemaking and childrearing skills. A comparison of the children receiving stimulation and the control group who were not part of this structured program follows:

	Stimulated group (13 children)	Control group (12 children)
Average IQ at beginning of program	64 IQ	86 IQ
1 year	115 IQ	115 IQ
2 years	120 IQ	95 IQ
5½ years	124 IQ	94 IQ
Follow up	All but 2 completed high school, 4 had 1 or more years of college.	Average grade level achieved - 4th

The program of stimulation included every aspect of sensory and language stimulation and emphasized achievement, motivation, problem-solving skills and language development. The staff involved with the Milwaukee Project feel that intervention and support for children reared with intellectually inadequate parents and living in a disrupted family environment must continue throughout the child's school as well as the preschool years.

Another study, The Children of Kauai, demonstrated that parenting techniques can assist in offsetting the effects of stress before, during and immediately after birth particularly among children of poverty. Even though such stress was the same for the experimental and control group such things as the parent's language style, infant stimulation and concern for emotional involvement of the child could do much to reduce or eliminate the stress conditions.

Without education, the education of children by parents, children would not have much promise at any age. Nothing illustrates this better than the 28 cases of children who have been abandoned or lost and have been raised by animals. Two of these children were discovered in the United States, one in 1938 in Pennsylvania and another in 1940 in Ohio. Most of these children did not live past their teen years and each one was raised anywhere from two to twenty-three years with a wolf, bear, sheep, calf, pig, baboon, panther, leopard, gazelle or ape. This small number of children who during the seventeenth and eighteenth centuries were found living in a state of solitude in the woods are not without parallel of those children occasionally appearing in the newspaper who have been raised in confinement or isolation by abusive parents.

The most famous case of a child being raised by an animal and its implications is the Wild Boy of Aveyron. Francois Truffaut produced a movie entitled The Wild Child based on the boy's life. Victor of Aveyron was found 400 miles southwest of Paris in the woods of Caune, a wild, rugged region of France in 1799 when he was about 12 years old by three sportsmen who cameupon this wild, naked boy hunting acorns in a tree. The child made inarticulate sounds, ran on all fours, ripped apart chickens for food, sucked his water, did not focus on human beings and functioned at what would be described as a mentally retarded level. After 3 years of continually running away to live like the wolf who had raised him he was put under the care of a young physician, Dr. Jean Itard, who headed a school for deaf-mutes in Paris. Itard spent five years trying to civilize Victor using sensory stimulation and many techniques which were the foundations of special education. He was discouraged in his task, yet persistant. The complete social deprivation of Victor during the early and middle years of childhood resulted in a human being of limited humanization and education. Jean Itard concluded:

> "That because of Victor's long inactivity, his intellectual faculties can develop only slowly and with difficulty and that this development, which among children raised in a civilized society is the natural outcome of time and circumstances, is here the slow and arduous result of an active education where the most forceful methods have been used to obtain the slightest results."

The Wild Boy of Aveyron, The Children of Kauai, The Children in The Milwaukee Project and The Children of The Kibbutz System all reinforce the need for parents who are unable to provide adequate stimulation for their infant or child to find a quality program to help them in their home or provide a good environment outside of the home or both, starting at a very early age and continuing until the school years. The first three years of life are crucial in developing the groundwork of human intelligence, beginning to educate the child at age 4, 5 or 6 is too little, too late.

#2. *Parents of minority students should request that an EXCEL program be started in their school.*

Project EXCEL is a tough self-help program for students and their parents. Jesse Jackson who was beside Martin

Luther King Jr. when he died, fought for employment for blacks in Operation Breadbasket and is a leader in the civil rights movement, is also the father of five children. He knows the problems they face. Leadership, motivation and pride are the basics of EXCEL plus renewed cooperation among students, teachers and parents. Parents must pledge 4 things: to meet with the child's teacher and exchange phone numbers, to pick up report cards 4 times a year, to pick up test scores and to make sure their children study 2 hours a night without radio or television. His message to depressed blacks is that they must take responsibility for their own upward mobility and the quality of their lives -controlling their own destiny. EXCEL is a program which attempts to counter so many attitudes that develop because of the cycle of poverty: apathy, hopelessness and a lack of control over the future. The spirit of EXCEL is a lifting of the spirit of poverty and is best put in Jackson's own words:

We can be as good in academics as we are in athletics, but we've got to believe we are somebody.

Too many of our schools are infested with a steady diet of violence, vandalism, drugs, intercourse without discourse, alcohol and television addiction. The result has been to breed a passive and superficial generation.

We must contrast the politics of the five B's - blacks, browns, budgets, busing and balance - with the five A's - attention, attendance, atmosphere, attitude and achievement.

Many of us allow our children to eat junk, watch junk, listen to junk, talk junk, play with junk and then we're surprised when they come out to be social junkies.

No teacher can teach in a moral vacuum. It doesn't matter how high you score on the test or how many degrees you have or how much tenure you have if you come to school as late as you can, leave as early as you can, make as much as you can, and then sit on your can.

Parents must make room in their hearts and then in their house and then in their schedule for their children. No poor parent is too poor to do that, and no middle-class parent is too busy.

Children must know that it is not their aptitude but their attitude that will determine their altitude.

What does it matter if we have a new book or an old book, if we open neither.

You're not a man because you can make a baby. It takes a man to raise one. Girls can have a baby but it takes a woman to raise one.

Jesse Jackson speaks to all students, parents, teachers and school administrators but his message is especially poignant to the minority who feels trapped in the environment of poverty which has encircled them from years of exploitation and discrimination.

Figure 66. Developmental Milestones From One Week to One Year.

Month	Motor	Social-Emotional	Language	Mental
1 Month	*Sucking reflex triggered by gently stroking lips or cheek close to corner of mouth. **Tongue Retrusion Reflex is disappearing. This reflex allowed for the expulsion of solid or hand objects as a protective device for the infant. *Neck righting reflex of body-head of infant (placed on back) rotated sideways causes body to rotate to follow head. *Body righting reflex of head-feet and legs of infant (placed on back) rotated sideways causes head to follow body. *Reflexive grasp-hand clenches on contact. **Tonic neck reflex- head turns toward outstretched arm with other arm flexed to shoulder is common position. Lifts head briefly. When pulled to sitting position head lags. Rolls part way to one side. Fisted hand. If object placed in hand drops it immediately.	Positive response to comfort, negative response to pain. "A face" is a quieting influence. Stares at mother's smiling face. Grasps people and adjusts body to body of other person. May recognize voices.	Crying differentiated for pain, hunger. **Reflexive vocalization of newborn changes and becomes related to stimulus. Responds to voice. Throaty sounds. Auditory awareness-stops or lessens movement when hearing a distinct sound.	Prefers patterns. From line of vision follows object or light side to side in arc of 90° and up and down. Quiets at seeing face. Cries deliberately for needs. Gaze becoming less starey and vague.
2 Months	*Moro reflex-startles reflexively. Holds head up and erect for a few seconds while sitting. Arms and legs make circling movements. Grasps purposefully. Holds object momentarily. Swipes at object.	Sucks to quiet self. Shows excitement and distress. Smiles at people. Regards a person deliberately and follows them with their eyes. Interacts with excitement, movement, vocalization. Quiets to "a face", voice or handling. Prefers people to objects.	Shows interest in sounds with facial expressions. Coos, gurgles, grunts, sighs. Vowel sounds make up the above. Mostly E and A but also U, I, H, K, G. Seven combinations of sounds expressed.	Stares at surroundings. Focuses on objects at 7-8" especially if objects are attractive. Anticipates objects and movement of objects. Tries to grab attractive objects. Contemplates hand. Repeats actions purposefully. Associates and discriminates people, tastes, voices and objects.

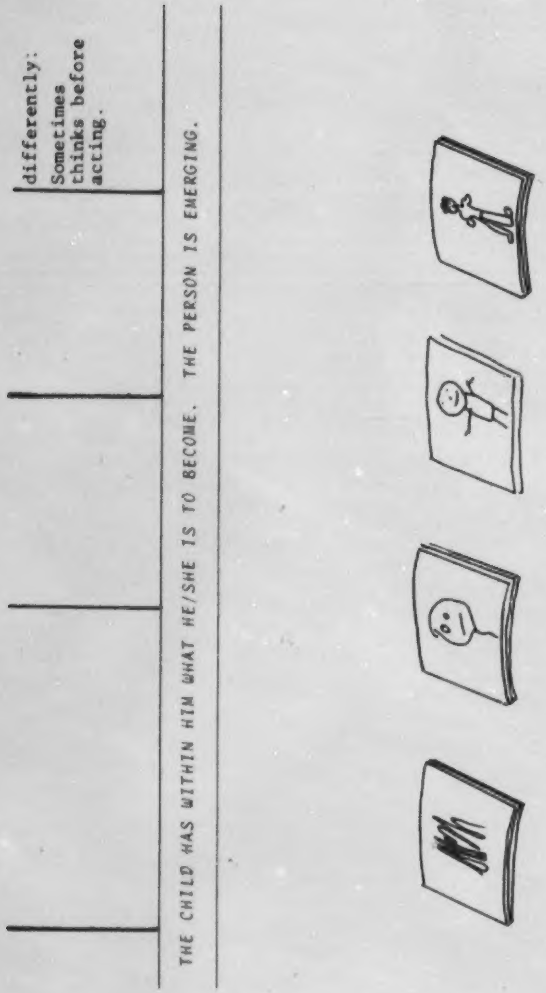
3 Months	**Grasp reflex disappearing as hand remains open longer-palmar grasp. **Tonic neck reflex disappearing-head held more often in midline. *Supporting reflex-pushes against surface while standing. Moves head, arms, legs vigorously. More rigidity to body when picked up. Lifts belly and head when on stomach. Stands briefly when pulled to a stand. Reaches for object with both hands-sometimes with closed fist. *Labryntine Righting reflex of head-adjusts head to gravity with changes in body position.	Smiles immediately and spontaneously. Recognizes mother and responds with total body. Differentiates people. Signals to people with body and face. Tries to attract attention.	**Reflexive babbling disappears. Babbling sounds now made for their own sake-satisfaction of playing with sounds. Sustained cooing, gurgles, squeals, sighs. Variations in pitch and loudness. 13-14 different sounds expressed. Syllables of vowels and one consonant K, L, G. Listens to voices. Perceives syllable as a unit.	Concentrates and follows objects near or at a distance in arc of 180°. Reaches for object. Looks at rattle in own hand. Keeps object in hand purposefully. Waits for expected reward. Begins to differentiate people. Explores own body and movements. Begins to associate action with result. Aware that hands and feet are extension of self. With eyes searches for sound source. Begins integration of voluntary and involuntary actions as reflexes come under control of higher thought processes.
4 Months	**Tonic neck reflex dissapears-head more often in midline and limbs in symetrical position. **Startle reflex begins to disappear. **Sucking reflex comes under voluntary control. On tummy holds head 90° from surface and on back cranes neck forward keeping head in midline. Only slight head lag when pulled to sitting position. Raises hips, rocks, rolls from side to side or completely over. Stands erect when pulled to standing.	Knows familiar faces and may resent strangers. Anticipates people. Vocalizes mood. Interested in own image. Initiates socializing, plays games and sustains interaction.	Cooing and squealing have variation in pitch. Responds to talking with smiles, squeals coos. Continued babbling. Eyes search for speaker. Imitates a few sounds.	Regards object immediately. Grabs and manipulates object and hands. Is aware of their power on outside world. Transfers objects from one hand to another. Considers place from which object was removed. Sustained interest in detail. Follows visual and auditory stimuli.

	Sit supported 10-15 minutes. Swipes at objects inaccurately. Hands touch in midline. Dagger grasp with fingers around object, thumb extended. Adjusts vision to varying distances.			Discriminates familiar and strange situations and unfamiliar people. Has preferred objects.
5 Months	Lifts chest and head high off surface (on tummy) and lifts head and shoulders (on back). No head lag when pulled to a sitting position. Rocks on tummy. Rolls from stomach to back. Stands supported. Sits supported for long periods of time. Helps in pulling up body. Shovel grasp-opposition of thumb and fingers. Plays with object in hand.	Shows fear, dissatisfaction and anger. Imitates facial expressions. Initiates social contact by smiles and vocalization. Anticipates being held or picked up. Tries to interrupt a conversation. Protects own objects. Smiles at mirror image.	Purposefully imitates sound. Imitates by watching mouth and listening to others. Makes 17 different sounds of vowels and a few consonants. Understands name. Vocalizes to self. Vocalizes to gain attention.	Purposefully turns head toward sound or to disappearing object. Reaches for object with two hands. Holds one object. Studies object and hand and their relationship. Manipulation of objects increases touching, holding, turning, shaking, mouthing, tasting. Recognizes familiar objects. Purposefully imitates movements.
				Repeats actions which change or manipulate own environment.
6 Months	**Moro reflex disappears. On tummy lifts and extends legs. Turns, twists, bounces in all directions. Gets up on hands and knees, rocks, moves forward, creeps. When pulled to sitting assists in lifting head. Sits with slight support-balances well on extended hands. Stands with support. Rotates wrist to manipulate objects. Scissor grasp-two fingers oppose thumb.	Imitates facial expressions. Responds to name. Reaches out to strange children. Vocalizes for help. Prefers play with people.	More consonants interspersed with vowels-P, B, M added. Varied use of pitch and volume. Lalling-imitates own sounds from auditory feedback(vocal play). Actively babbles to exciting sounds. Grunts, growls, coos, gurgles, squeals, giggles, laughs in response. Responds to intonation of adult voices. Recognizes familiar voices.	Alternates hands to hold objects. Holds one object and reaches for and grasps another. Reaches deliberately for anything he sees and looks at it from different directions at length. Picks up dropped objects. Senses hand-object relationship. Aware of parts of self and separateness from world. Reaches out to strange children.

7 Months	Lifts head as if wanting to sit up. Draws toes up to mouth. Creeps with object in one hand, may crawl. May pull self to stand, bounces and supports large portion of own weight. Sits with slight support of hands and may get self up to sitting position. Holds object in each hand and bangs them together.	Begins to tease and show humor. May fear strangers. Wants to be included in interaction. Wants to make small decisions. Discriminates angry and friendly talking. Sucks and chews on fingers and toes. Anticipates play. Plays with objects on own. Regards own image in mirror.	Vowels and consonants occur at random. Well defined syllables-ma, da, ba, di, mama, dada. Tries to imitate sound sequences.	Compares objects. Holds more than three objects. Transfers object from one hand to another. Interested in detail of objects and situations. Reaches for objects with one hand. Distinguishes near and far. Anticipates a signal of an event. Initiates imitating an act. Associates similar acts that he or she and another person do. May associate picture with person. Interested in consequences of own behavior.
8 Months	Crawls with one hand full. Propels self by bouncing, lunging, grabbing. Pulls self to standing but needs help getting down. Stands leaning against something or holding hands. Gets to sitting position. Sits alone for one minute.	Fears strangers. Follows mother and fears separation from her. Explores environment with security of her closeness. Quieted by mother. Does not want to be confined. Uses parents to get things. Regards image in mirror but does not touch it.	Lalls in great variety with intonation. Imitates mouth movements. Labels an object in imitation. Says Dada and Mama. Says two to four single words. Responds to familiar sounds Begins to selectively recognize familiar words. Inconsistent matching of word to action. Recreation of sound to replace or recall a pleasurable experience or object.	May hold three objects. Reaches for objects out of reach persistently. Looks for objects he sees disappear. Explores the relationship of two objects positioning objects in a variety of ways. Recalls past events and own past actions. Anticipates events not dependent on own behavior. Develops sense of timing-structure of the day. Begins imitating people remembered. Relates own body movement

				to movement of others. Solves simple cause and effect problems by observation. Combines bits of knowledge and behavior into new responses. *Learning style emerges.*
9	Crawls up stairs. May stand up by flexing knees and pushing up. Stands briefly and gets down from standing. Walks along furniture. Gets to sitting position and sits alone for 10 minutes with control. May pivot in sitting position. Clasps hands, bangs objects at mid body. Pokes with index finger. Pincer grasp-tip of index finger opposes thumb.	Perceives mother (and perhaps other family members) as separate objects. "Performs" for the family. Protects self and possessions. Interested in other children and their play. Begins to try to figure out moods and motives of people. Initiates play and makes deliberate choices.	Definite intonation patterns. Imitates coughs, tongue click, hisses and sounds that are interesting. Uses words meaningfully, Dada, Mama-vocalizes needs. Repeats words over and over again. Listens intently. Responds to several words. Carries out simple commands.	Aware of vertical height. Builds a block tower. Matches 2 blocks. Explores objects from different body positions. Uncovers toy seen hidden. Bored with repetition stimulus. Anticipates rewards, return of a person or object. Increased concentration-resists interruption.
10 Months	Crawls with straightened arms and legs and gets self to standing position by straightening limbs. Walks holding 2 hands. Gets on stomach from sitting. Holds two objects in one hand. Releases grasped object. Sits and pivots.	Shows many moods. Identifies body parts. Imitates gestures, expressions, sounds. Beginning of sexual identity with parent. Aware of self in relation to approval and disapproval.	Number of consonants used increases. Combines words with gestures. Repeats words over and over to inappropriately answer a question. A few more words added to 6-18 word vocabulary. Interested in familiar words. Understands many words and commands.	Aware of limited distances and space. Reaches for toy without looking at it. Extensively explores objects with hands, eyes, ears, index finger. Searches for object seen hidden in various locations. Imitation accelerates. Senses self to be an object among others. Begins to have a dominant hand, foot, eye.

11 Months	Gets to standing by flexing knees and pushing off. Stands while using hands, leans, pivots. Walks holding one hand. Holds and makes mark with crayon. Lifts spoon to mouth. Uses hands to do a number of things at once. Refined pincer grasp-tip of index finger opposes thumb.	Resists or tries to alter mother's goal for him or her. Assertive and likes "to do" for self. Starts to control own behavior seeking approval or disapproval. Shows guilt with disapproval. Teases and tests parents. Imitates other adults and children. Play is parallel-beside but not with other children.	Jargon-meaningful scrabbled words. Recognizes words as symbols for objects.	Explores containers and its contents. Uses different objects to achieve a goal. Increases knowledge of properties of particular things and objects. Places rings on towel, nests boxes. Increased imitation. Experiments with same act done by different sides of the body. Aware of consequences of some of his actions. Enjoys and relates to pictures.
12	**Neck righting reflex disappearing. **Body righting reflex of the head disappearing. Adds maneuvers to walking. Climbs up and down stairs and in and out of things. Sits "gently." Prefers one hand. May take articles of clothing off. Holds cup to drink-self feeds.	Recognizes as well as expresses emotions. Fears strange people and places, prefers others. Reacts deeply to separation from mother. Sense of humor developing. Affectionate to humans and objects. Assertiveness and negativism increase. Offers child or adult toy but does not release it.	Sound of language more adult. Aware that language causes reactions. Practices words. Two to eight words used in short sentences and jargon. Enjoys saying words that are made by objects. Begins to classify objects by word attachment. Listens with selected interest.	Uses objects in more complicated play and in combination. Stacks, rotates, displaces objects. Imitates tower of 3 blocks. Groups several objects by properties. Searches for object even though has not seen it hidden but only remembers where last hidden. Long term memory developing. Remembers behavior which he or she imitates. Increased problem solving by trial & error. Differentiates people therefore trusts people


differently: Sometimes thinks before acting.
THE CHILD HAS WITHIN HIM WHAT HE/SHE IS TO BECOME. THE PERSON IS EMERGING.

#3. *The parent of the growing child in their role as teacher must utilize a sequence of development of the motor, social-emotional, language and mental aspects of their child as a guide to*
- *understanding their child.*
- *providing experiences that stimulate and help the child move through the sequences of mental growth.*
- *determining any serious developmental lags in the child so help in providing the appropriate experiences can be obtained.*

Figure 66, is an example of the sequential development of a child from one month to one year. Although this chart is a synthesis of many developmental charts it is typical of the type of the "sequences of development" available to parents from the first day of life through the developing years. Some of the resources listed on page 332 contain excellent developmental charts as well as mini-courses on infant and toddler development.

As the Chinese Proverb States, "*A Journey of Ten Thousand Miles Starts With a Single Step.*" The sequence of development in figure 66 depends on the maturation of the brain and nervous system and appropriate experiences to develop the elegant and elaborate network of axon and dendrite connections in the central nervous system and an attitude and motivation towards learning. If a parent has an understanding of the way in which most children develop the behaviors of the child at each stage can be appreciated, accepted and developed by the parents and appropriate experiences for the child for each particular stage can be provided by the parents. As can be seen from the cases of children deprived of early stimulating experiences, such as Victor of Averyon or the control group in The Milwaukee Project, the intelligence of a child does not develop automatically with central nervous system maturation but rather with the stimulation of the maturing central nervous system. The specificity of the CNS is very definite but it is also very plastic or dependent on stimulation. Understanding of stages of development decreases the frustrations of raising children and a greater acceptance of the child at that particular moment of development.

A developmental sequence should not be considered a rigid timetable of performance for some children go through stages earlier or later and there is a great overlapping of stages. Also it is very difficult to sort out what is specifically mental development for it is dependent on and manifested in language, motor and social development.

Each aspect of development is critically dependent on the other aspects of development.

Social-Emotional Development. Without healthy emotional development and positive interrelationships with people intelligence will be masked or fail to develop. Motivation and attitude towards learning can be completely negative without positive emotional development.

From the moment of birth infants are experiencing the world as either a

- positive or negative world.
- loving or rejecting world.
- place they want to be or a place they want to withdraw from or turn against.
- rejection or acceptance of being alive.
- comfortable or stressful world.

The foundations of whether the infant will trust the world and the people in the world are developed from Day One. Also from the moment of birth the child is laying the foundations of his or her attitude towards "experiencing" the world. "Is it a place I want to experience and grow in or is it a place which I do not want to experience" consequently either taking advantage of experiences or developing self-destructive behaviors. As Jesse Jackson so aptly puts it, "Opportunity isn't enough. Motivation is equally important."

The quality of the relationship between the parent or parent substitute and the child is crucial to the development of trust. If such an attachment is not formed the child's ability to relate to and trust others later in life may be impaired. The basis of trust and nourishment of the child's spirit is developed through:

1. Satisfying the child's needs of food, sleep, warmth and comfort.
2. Physical contact.
3. Promptly responding to the child's signals for help--food, comfort, stimulation, acceptance-to relieve stress.
4. A one to one or one to two warm, caring, loving, giving relationship with the child.

By becoming socially responsive to the mother's or substitute mother's responsive-smiling face, kind voice and warm body which rewards the child, the child becomes alert and responsive and learns to anticipate and manipulate the mother. The mother's face also serves to filter out confusing, irrelevant stimuli and initially teaches the child to focus on one set of meaningful, associated stimuli rather than vaguely scanning the world. The mother is the primary source of pleasure and the primary "reward" in the child's life which the child looks forward to, seeks and desires. Such a relationship is critical to the concept of reinforcement as it affects the child's behavior. If a particular behavior of a child is responded to by positive reinforcement that behavior will most likely be repeated by the child. Thus the child can be encouraged to give up unacceptable behaviors in return for continued love and affection. If there is no trust, respect and love between the child and parent there is no medium of exchange ... management of behavior is impossible without this foundation.

The quality of the interelationships of early life becomes a part of the subconscious and the basis for

- personal and social adjustment.
- the ability to positively respond to situations in which the child can learn.
- accepting failures and overcoming obstacles.
- the freedom to explore the environment in the security of the knowledge that the parent will be there to comfort and protect if difficulties are encountered.
- turning to adults for help, advice and constructive criticism.

It is incorrectly assumed that all mothers and fathers should and do feel natural and overwhelming affection for their newborn infant. There is a great deal of difference in the quality and quantity of affection parents feel for their new infant and *in the infant's response towards the parents*. It is definitely not a one-way relationship. Each child has their own inborn constitution, tempo and differences from the moment of birth and are themselves modifiers of the mother's behavior. The mechanisms for responding to stress and anxiety in one infant are very different than another infant -

- one cries, another sleeps
- one becomes angry, another withdraws
- one is quiet, another is active
- one is responsive, another unresponsive.

Parents who could probably have raised one type of child easily are unable to respond positively and affectionately to another type of child. If the "match" of parent to child is stressful, negative, hostile or unresponsive the parents should immediately seek help and direction in responding to an infant who is difficult to respond to. These very early interrelationships--not at 2 or 3 but during the first week, the first year of life are vitally important to the emotional and subsequently to the intellectual development of the child.

Later signs of stress in the child such as waking at night, temper tantrums, lying, fears and stomach/headaches call for parents to look behind the symptoms of stress to the reasons for the child's anxiety so that they can listen to the child and help them understand their feelings. Resources listed in the parent's library on page 232 can be very enlightening, parenting classes or the professional advice of a physician, child guidance or psychiatric center can be sought. The emotional development of the child requires equal study, time, advice and resources as the physical and intellectual development of the child. Children who have been malnourished to the extent that they are only up to 60% to 70% of their normal body weight and have had no toys to play with but have a sense of security, belonging, affection and stresses and frustrations promptly attended to show comparable intelligence quotients to their age mates in more favorable environments in regards to nourishment and toys to play with!

Mental Development. The parents are the child's most important teachers. The set for learning is established by 3 years of age if not before. The parents must design and organize an environment that provides the child with experiences to attain developmental milestones by integrating the maturation of the central nervous system and experiences which stimulate the CNS. Figure 66, Developmental Milestones, points out infant reflexes which later disappear. As these reflexes which are necessary for infant survival become under the control of the central nervous system and thus under the control of higher levels of the brain they either disappear or become part of deliberate, purposeful behavior.

There are very subtle variations in children's environments and experiences which have profound impact on how they will interact with their later environment to further develop their mental capacity and output. The patterns of interaction with the parents determine whether the child will actively participate in their later education process. From birth to age 6 the behavior patterns and patterns of learning are built up to determine the kind of person the child will become--the child is learning to learn. During this period when the parents totally play the role of teacher there are "critical periods" the child passes through in which new behaviors are learned more easily and optimally. They are opportune times for learning a particular skill. Learning such a skill at a later or earlier time in the sequence of development is more costly to the child in terms of time and effort needed to acquire a particular skill. The parent's challenge is to match the child's critical period of development, a time when there is a maximum capability for and interest in learning a particular skill to the objects, experiences and parental response to that stage of development. Parents must be able to identify where a child is in the developmental stages and give rich and varied experiences to the child in *that* stage as well as providing experiences that will "stretch" the child's intelligence on to a new level of achievement. However, at each level or stage a child must have an opportunity to practice their emerging skills. As well as matching experiences to stage parents must be aware that children have different learning styles-their own way of perceiving and understanding the world from birth on. It is now known and has also been experimentally proven that infants have definite or primary *modes of learning*. Diagnosing a child in 3rd or 4th grade (after years of frustration) as an auditory, visual, tactile or combination thereof learner is too late. Some infants are visual learners, others auditory, others tactile and many a combination of all three or a combination of two. Once a style or mode of learning develops it is difficult to modify or replace that mode. The primary mode of learning should be used while the other modes are strengthened. Weak or ineffectual modes of learning may have to be circumvented eventually.

Early learning is vitally important because it is learning without any previous experience. A child acquiring any further experience depends on the previous experiences. After the first experience (at the day of birth) it is never again new. The cumulative deficits from a lack of experience are devastating in the young child. The day-old infant knows 100% more than he did the day before. Despite an infant's helpless appearance she or he is actively interacting in their surroundings, taking in sensory experiences and organizing them by firing neurons and establishing pathways of integration, as well as responding with signaling behaviors. By two or three the "new" person has learned a language, constructed a complex mental model of the world and established internal rules that govern his or her behavior. Before a child begins his or her "education" they know their own identity, the identity of others, their place within the family, their relation to others, the expectations of others, acceptable and non acceptable behavior, a language and thousands of facts about the world, what it contains and how it works. The complete absorption and extreme seriousness with which the child undertakes each activity, however large or small, is what gives each of those activities its educational value. Everytime that a young child touches, moves, looks, listens, smells and tastes they are adding something to their store of knowledge about themselves, their family and the world at large.

The parents must provide the child with an environment that:

1. *IS ORGANIZED* so that a child can pleasurably and easily explore the environment, gain mastery over the environment, take care of the environment and organize the environment in his or her own mind. A few well-organized easily accessible toys, activities and objects for a child in each room is far superior to the concept of one place with one toy box for the child to "explore".

2. *HAS A VARIETY OF OBJECTS OF QUALITY* which provide stimulation for all of the 6 senses - seeing, hearing, touching, smelling, tasting and moving in space. To learn to concentrate a child needs objects and activities to concentrate on. Objects and activities are needed to explore in all their detail, complexity, differences, likenesses, spatial relationships and cause and effect phenomena. Objects and activities which offer a variety of textures, sounds, sights, smells, tastes and movement can be obtained not only at the toy store but also from the great outdoors, the objects commonly found in the home, the hardware, drug and five and dime store. The world provides a limitless store of activities for the child if they are utilized by the parents.

3. *IS GROUNDED IN REALITY.* From real experiences that reveal the structure and workings of the world the child formulates his own model of what is real and what is fantasy, what is necessary for survival and happiness and what is not.

4. *HAS ROUTINE AND STRUCTURE.* All human beings thrive on being able to anticipate what will happen next and being able to sense a rhythm of the events that will happen and have happened in the mind. If the child's day is chaotic and without routine anticipation is not developed and the ability of a child to anticipate the next event and the day's events is thwarted. Routine and structure provide a rhythm to the child's day. Activities which are alternately active and quiet, dependent and independent on adult's help establish rhythm and structure for the child. Fifteen minutes out of every hour of the day with a child is sometimes better than long periods of dependency. Such a scheme initiates a child into a new activity which he or she can further sustain and explore.

5. *HAS THE ATTENTION, INTEREST, ENTHUSIASM AND ENCOURAGEMENT OF THE PARENT.* Whether the child or the parent initiates an activity the parental attitude towards the object or activity is more important than the actual activity or object. "Beauty is in the eye of the beholder," The parent interprets the world to the child and the child internalizes this interpretation. An ant, rusty can or a broken balloon can all be an exciting experience for the child if the adult's attention to, interest in, enthusiasm for and encouragement in exploring these things is modeled and provided by the parent. The imagination and curiosity in these objects can be encouraged and the complexities of the reasons for their presence and state of each of these objects explained and explored. The question "Why?" should not only be asked frequently by the child but frequently by the parent to encourage problem solving and concept building. The kind of world an adult makes for him or herself is dependent on the way in which the senses have been trained to see, hear, feel, smell, taste, touch and move in the world.

6. *SETS LIMITS.* Children not only need but want limits. Delinquent children, emotionally disturbed children, behavior disordered children, children who have joined cults cry out for limits, ground rules. Without such limits they are lost in a world without order, expectations, guidelines. Firm, consistant and logical rule setting is essential to the freedom of the child to explore and learn. Positive reinforcement is always preferable to negative reinforcing. Also adult models of positive behavior are necessary for the child to develop positive behavior. Parents who are having problems managing their child's behavior or have difficulty making decisions about their child's behavior should seek help in the form of behavior management courses or from someone in the field of child guidance or parenting.

Dr. Burton White, an experienced researcher and educator in early learning has identified factors in the makeup of preschool children that bring about competency in the early grades. Some of these characteristics may be surprising to you.

1. To get and maintain the attention of adults when that attention is appropriate.
2. To use adults as a resource.
3. To express affection and hostility to adults.
4. To assume leadership with peers.
5. To follow the lead of others.
6. To express affection and hostility to peers.
7. To resist distraction.

8. To compete.
9. To empathize.
10. To praise oneself and show pride in accomplishment.
11. To involve oneself in adult behavior or express the desire to grow up.

Language Development. Language does not develop in a void. Such a statement is clearly illustrated by the 28 children raised by animals who had no language but the language of their animal parent when they were found and yet subsequently developed language even though it remained deficit in many ways. Language requires a visual and auditory model, someone to talk with, something to talk about and the motivation to do so. Language liberates the intelligence. Thinking at the higher levels is done in abstract symbols, words and numbers. Language is crucial to express needs, attach symbols to actions, label the environment and clarify ideas in order to undertake and internalize new experiences. Language is a symbolic formation and expression, the highest and most complex form of communication which among other things differentiates man from animal. With it intelligence can be expressed, can be seen by the Wechsler and Binet Tests so dependent on language, knowledge is acquired, social interaction takes place and behavior is modified. Language is very dependent on the child's vision and hearing being intact but the absence of one or both of these sensory inputs does not prevent the development of language if an alternate route or sense is used.

Very simply put, language is developed by talking to and with a child. When anything is done with or for a child from birth on words should be attached to that interaction. Parents can develop language in their child by

1. Promptly responding to the crying of their infant.
2. Talking to their child and describing the world to the child, what they are doing, what they are thinking, what they are about to do and what they have done from the first day of a child's life in the world.
3. Responding to each sound and later to each word and then each time that a child talks by either imitating the sounds the child makes, clarifying words and responding and answering questions. Being a good listener. Infants between 3 and 5 months babble when no one is around. After 5 months of age an infant will no longer babble unless there is someone to respond to her or him.
4. Filling the child's world with sounds, tones, rhythms, auditory stimulation.
5. Modeling speech from which the child will copy sounds, words and extract the rules of speech.
6. Making it necessary for the child to express their needs for every day transactions.
7. Asking the child questions. Particularly questions that develop reasoning and logic. The most basic of these questions is "why". If a child is not asking "why" a parent should be. A child is capable of understanding much more complex concepts than he or she can express.
8. Expanding the child's language by extending the conversation either initiated by the parent or the child and extending the description of the properites or complexities of a particular object, activity or experience.
9. Exposing the child to a world of language -- reading to the child, having the child be a part of family meals, taking the child on family trips and outings and having the child spend the majority of the day where quality verbal stimulation is the rule not the exception.

In school and in the world effective interaction depends to a great extent on the facility a child has with both the written and spoken language. Language is crucial to the development of intelligence.

Motor Development. As with language motor development does not happen automatically. It is very dependent on experience. Motor development for the remediation of learning disabilities for the school age child is of questionable benefit but motor activities for the young preschool child hastens and makes it less difficult for the young child to coordinate what the brain wants to do and what the hands, feet and body is capable of carrying out; allows the child to experience objects, space and orientate herself or himself in space. The young child develops voluntary control over the muscles from the head to the feet and from the center of the body outward. The control of the large muscles usually precedes the smaller. Gross responses precede differentiated, specific patterns of motor response. A child is bilateral using both sides of the body before one particular dominance is separately established for the eye, hand and foot.

Motor development occurs within the confines of the central nervous system maturation but an environment which promotes motor development must be provided for the process to take place. A lack of sufficient and proper motor stimulation in the early years of life may be a cause of academic learning difficulties that surface later on. The brain transmits its commands to the muscles, the expressors of intelligence. The hand is often called the instrument of intelligence for it is through movement that intelligence expresses itself. The child must be provided experiences that will develop the muscles, coordination, locomotion, balance and posture so that they will be ready for this expression.

Determining Developmental Lags. There are many formal testing instruments which screen and assess young children at developmental risk but it is usually the parents who must first determine that their child is not achieving developmental milestones such as the ones outlined in figure 66. The pediatrician or physician is usually looking for hard signs of developmental fault but the parents may be able to catch such a lag at a much earlier date and receive appropriate help with their child so that valuable learning time is not lost. The problem with early intervention is that it often comes too late.

If a child is consistently behind in one or more areas of sequential development or if all areas of development lag behind normal milestones the parents should not hesitate to obtain professional evaluation and help for them and their child. In early development the learning value of each month is greater than for an older child. A 2 month old has accumulated 50% of their total knowledge in the past month. If a child has a sensory deficit alternate pathways for nurturance and communication will have to be used and if there are adjustment difficulties blocking learning, parents may need help with their parenting skills. Perhaps the child's preference for mode of learning can be determined and utilized. The failure of an infant reflex to disappear or to persist may indicate a defect in brain function. At one or two years of age a child does not even realize they are being "tested" so it is not a stressful event for the child. If high risk infants are detected early and put in a program of sustained, quality experiences appropriate to their problem they may be able to enter school with an improved capacity for learning and performing, reducing behavior problems and increasing the opportunity for normal school experiences.

If a parent feels their child has a developmental lag assistance is available from:

1. Early Periodic Screening, Diagnosis and Treatment (EPSDT), a Federal assistance prevention program designed for those eligible for Medicaid. It is open to children up to 21, born to unemployed parents, the working poor and social security recipients. Under the Social Security Act (Title XIX) with regulations established in 1972 a parent can select a facility to meet their child's needs. The goal of EPSDT is to reduce and prevent physical and mental disabilities among children from birth to 21 years of age. Notification of the program is sent to all eligible families but only 60 to 70% respond. A case worker aids the family in finding a physician and screening the child within 60 days in relation to medical, nutritional, developmental, hearing and vision problems. The number to call for information is 614-466-4966.
2. Health Department.
3. Public School System
4. Welfare Department.
5. Child Guidance Clinics.
6. Mental Health Clinics.
7. Maternal and Child Health Clinics.
8. Public or private schools for the handicapped.
9. Children and Family Services.

#4. *Parents in their role as teacher should obtain and use good books on parenting to carry out the difficult job of educating the child from birth to 6 years of age.*

The following books are highly recommended:

1. The First Three Years of Life
   By Burton White
   Avon Books
2. The First Twelve Months of Life
   By Frank Caplan
   Bantam Books
3. The Second Twelve Months of Life
   By Frank and Theresa Caplan
   Grosset and Dunlap
4. Total Baby Development
   By Jasolav Koch
   Wyden
5. Baby Learning Through Baby Play
   By Dr. Ira Gorden
   St. Martin's Press
6. Parent's Yellow Pages
   By Princeton Center for Infancy
   Anchor Books

7. Child's Body
By The Diagram Group
Paddington Press

8. Infant and Child in The Culture of Today
By Gesell, Ilg, Ames and Rodell
Harper and Row

9. The Child From Five to Ten
By Gesell, Ilg and Others
Harper and Row

10. Youth
By Gesell, Ilg and Ames
Harper and Row

11. The Power of Play
By Frank and Theresa Caplan
Doubleday

12. The Mother's Almanac
By Marguerite Kelly and Eliza Parsons
Doubleday

13. Your Child's Sensory World
By Lise Lipmann
Dial

14. The Open Home
By Catherine Munnion and Iris Grender
St. Martin's Press

15. Loving and Learning
By Norma J. McDiarmid and Others
Harcourt, Brace, & Jovanovich

16. Coping With Children's Misbehavior
A Parent's Guide to Discipline
By Rudolph Dreikurs'
Hawthorn

17. The Magic Years
By Selma Fraiberg
Scribners

The Young Parent's Book Club
40 Guernsey Street
Stamford, Connecticut 06904

offers monthly selections of books for parents of any age of high quality.

The Parents as Resources is a team of two teachers and a social worker (all parents), dedicated to helping other parents work creatively and confidently with their children during the important pre-school/primary years. PAR has designed *concrete learning activities* and a *participatory workshop format* to encourage positive and enjoyable shared experiences between parents and children.

The PAR team works to help parents in their role as early educators through various approaches. These include:

1. A series of easy-to-use "Recipes For Fun" activity books.
2. A participatory workshop format used in training parents.
3. Leadership training offered both in the Chicago area and nationally to parents, teachers and others involved in parent training.
4. A new training package for community home-visitors.
5. Magazine articles, lectures and demonstrations.
6. A weekly syndicated newspaper column, "Recipes For Fun," now in comic strip form.
7. "Look At Me!" a television series for parents, produced by Chicago's educational station (WTTW) and funded by a grant from the National Institute of Mental Health to the PAR Leadership Training Foundation.

PAR Project
464 Central
Northfield, Illinois 60093
312-441-5617

Pretest

Cognitive

1. ____ of the child's intellectual development takes place between birth and age 4.
    ____ a. 50%
    ____ b. 10%
    ____ c. 5%

2. ____ of mental retardation is caused by a childhood environment which is unstimulating and non nurturing.
    ____ a. 35%
    ____ b. 20%
    ____ c. 5%

3. If there is to be any significant reduction in mental retardation ______ retardation must be reduced.
    ____ a. severe
    ____ b. moderate
    ____ c. mild

4. The neurons of the brain and central nervous system must be stimulated from __________ in order to form pathways of intercommunication.
    ____ a. association neurons
    ____ b. environmental experiences
    ____ c. none of the above

5. A developmental scale is a ________ timetable of childhood behavior.
    ____ a. rigid
    ____ b. approximate
    ____ c. flexible

6. If there is no trust developed in the young child between the parent and child the child sees the world as a ________ place.
    ____ a. positive
    ____ b. negative
    ____ c. loving

7. The motor development of a child is dependent on
    ____ a. maturation.
    ____ b. appropriate experiences.
    ____ c. both of the above.

8. One of the skills of being a good teacher to a child is to ______ the stage of development of the child and the experiences which are provided for him or her.
    ____ a. match
    ____ b. guess
    ____ c. neither of the above

9. The _______ of the interrelationships of early life becomes a part of the subconscious and the basis for the ability to positively respond to situations in which the child can learn.
    ____ a. number
    ____ b. quality
    ____ c. intensity

10. Language will develop in a child ________ hearing and seeing language used by the parents.
    ____ a. with
    ____ b. without
    ____ c. either of the above

11. Parents must provide an environment for their child which has
    ____ a. a variety of objects to manipulate.
    ____ b. routine and structure.
    ____ c. both of the above.

12. A ____________ is useful for parents in determining any serious lags in the child's intellectual maturation.
    ____ a. test of intelligence
    ____ b. developmental scale
    ____ c. neuron analysis

13. A parent who feels inadequate in planning a stimulating environment for their child can obtain help from
    ____ a. parenting courses and books.
    ____ b. agencies and preschool programs.
    ____ c. all of the above.

Key: 1.a, 2.b, 3.c, 4.b, 5.b, 6.b, 7.c, 8.a, 9.b, 10.a, 11.c, 12.b, 13.c.

Affective Barometer

Circle the word or words that best describe the intensity of your feelings.

1. Parents have an important role to play as teachers of their child or children especially in the preschool years.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

2. Parents have a great impact on the intellectual and emotional development of their child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

3. Patterns of learning are established in the years before a child's formal education begins.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

4. Mental retardation caused by environmental deprivation is preventable.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

5. Knowledge of children's sequential development is valuable in determining developmental lags in children and as a guide in choosing activities for a child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

6. If a child has a definite developmental lag a parent should seek help.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

7. It is important to seek an environment that provides stimulating experiences for a child if the parent cannot provide such experiences themselves.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

Mini Lecture or Presentation

... Born well
... Fed well
... Doctored well
... Raised in a safe environment

But parents must play yet another role if their child is to be an intelligent, well adapted human being.

... The Role of Teacher must be played.

All men are created unequal, all men (and women) could be given equal opportunity but they are not. Unequal children are born into unequal environments. Those bundles in blue and pink blankets in their plastic bassinets look very uniform but in 2 or 3 days they will go home to very different environments...environments that their parents provide for them.

In their role as teacher parents must bring their children to maturity without depriving them of the childhood experiences necessary to the development of intelligence. The child learns more during the first 5 years of life than in any other time of their development. Fifty percent of the child's development takes place between birth and the age of eight. Yet not more than one in ten children in the United States get off to as good a start in life as they could. Yet given a little help most families are potentially capable of doing a good job of raising children.

However, 20% of all children who become retarded are caused by a lack of an environment in which parents carry out their role of teacher...12,000 children a year added to the ranks of the mentally retarded because of environmental deprivation. Three out of four people who are mildly retarded were raised in a poor environment. Most of these children are mildly retarded who make up the majority of the mentally retarded population. (Use ditto 99.) The Pie of Causation to illustrate this causation factor.) Any significant reduction of mental retardation depends on the prevention of MILD retardation.

Intelligence has "something" to do with taking in information from the environment, doing "something" with that information in the brain and making "some" kind of a response. If intelligence is non specific, learning is specific. Did you know that it can be seen, photographed and measured electrically and chemically?

"The Computer Game"

We are going to program a computer that contains 10 billion flip-flop circuits, occupies less than a cubic foot of space and operates on the energy of a peanut for 4 hours, is totally mobile and was produced with unskilled labor.

1. Distribute Neuron Discs to the students prepared from ditto masters 100 through 109.
2. Have the students push back the desks and take the position indicated by the arrangement below.

Association neurons

sensory receptors　　　　sensory receptors

motor neurons　　　　motor neurons

sensory neurons

3. We are going to portray the physical process of learning by programming the computer - the human brain - with one tiny bit of information. You will have to remember where the motor, sensory and association neurons are standing.
4. Start with #1 and always read the number on your Disc so that the person who is next will know when it is their

turn. Read the dialogue and carry out the action. When you have given away your Disc you may sit down.

That was some connection! As this experience of the Father returning home is repeated over and over again the stimulated neurons of the brain begin to establish a closed system in which interconnections are made with amazing speed, in a split second. The infant hears the door open at a particular time of day or hears her Father's voice and instantly interconnects previous perceptions of what Daddy is like, when he is there and what part he plays in her life. The elaboration of cell assemblies become more complex as more concepts about Daddy are added. The network that you formed will fire as a unit while continually adding new connections, growing more dendrites as new information is received.

LEARNING is a physical, electrical and chemical process. The largest group of mentally retarded individuals are not retarded because of inadequate basic physiological structures but because the neurons have not been stimulated with a variety of experiences within their environments. Their dendrites form weak and inadequate neuron association patterns. The experiences a child has will determine the duration, intensity and number of stimuli received by the brain to form elaborate networks of associations and integrations within the brain.

For the majority of individuals labeled retarded it could be said that as children they have not had experiences in quality or quantity or properly sequenced to build up an integrated system of circuits for their 10 billion circuit computer to operate efficiently.

"Prevention of Mental Retardation In The Growing Child"

#1. *The parent of a growing child in their role as teacher should utilize a sequence of development of the motor, social-emotional, language and mental aspects of their child as a guide to*
   1. *providing experiences that stimulate and help the child move through the sequence of mental growth.*
   2. *understanding their child.*
   3. *determine any serious developmental lags in the child so help in providing the appropriate experiences can be obtained.*

Let's see how using such a scale can be helpful to parents. Pass out Developmental Milestones from One Week to One Year, dittos 110 through 121. This chart is typical of developmental charts available to parents covering the development of the child from birth to eighteen. The list of resource books that you will receive at the end of this unit contain excellent development charts as well as mini-courses on child development in relation to the chart.

1. Experiences

The sequence of development in this chart depends upon the maturation of the brain and central nervous sytem and appropriate experiences to develop the elegant and elaborate network of axon and dendrite connections in the central nervous system and an attitude and motivation towards learning.

Divide the class into twelve groups of approximately 3 students per group. Assign each group an age from one month to 12 months. Ask them to brainstorm for 30 minutes within their group to decide what experiences would be appropriate and what kind of environment a parent should provide at that age for the development of the motor, social-emotional, language and mental aspects of the child outlined on the developmental chart. Give each group an Experience and Environment Ideas ditto prepared from ditto 122 to tabulate their ideas. Have a person from each group share the ideas they have with the class.

Bring out the following concepts as the 12 groups present their ideas:

General.

1. A developmental sequence should not be considered a rigid timetable of performance but a general outline of development with overlapping stages and spurts and regressions.
2. Each aspect of development is critically dependent on the other aspects of development.

Motor Development.

1. Allows the child to "experience" objects, space and orientate her or himself in space.
2. Allows the child to coordinate what the brain wants to do with the capability of carrying out these wants motorically.
3. A lack of sufficient and appropriate motor stimulation in the early years of life may cause learning difficulties to surface later on in life.

4. The child must be provided experiences that will develop the muscle coordination, locomotion, balance and posture so that they will be able to express the intelligence of the brain.

Social-Emotional Development.

1. From the moment of birth infants are experiencing the world either as a positive or negative place, a loving or rejecting world, a place they want to be or a place they want to withdraw from or turn against. Any of these negative feelings can mask potential intelligence.
2. The development of trust is determined by the interpersonal relationships the child forms with his parent or parents. With this trust the infant feels free to explore the world secure in the knowledge that they will be protected, comforted and helped in their exploration.
3. If there is no trust, love and respect between the child and parent there is no medium of exchange. Management of behavior is impossible without this medium...without this foundation.
4. If an infant is unresponsive or stressful in their response to the parent and the parent feels disappointed or hostile in handling such behavior the parent should seek help in relating to their type of infant.

Language Development.

1. Language does not develop in a void. It requires a visual and auditory model, someone to talk with, something to talk about and the motivation to do so.
2. Thinking at higher levels is done in abstract symbols, words and numbers. Language is crucial to express needs, attach symbols to actions, label the environment and clarify ideas in order to undertake and internalize new experiences.
3. When anything is done for or with a child from birth on words should be attached to that interaction.
4. Parents can develop their child's language by:
    a. Promptly responding to the crying of their infant.
    b. Talking to their child and describing the world to the child, what they are doing, what they are thinking, what they are about to do and what they have done from the first day of a child's life in the world.
    c. Responding to each sound and later to each word and then each time that a child talks by either imitating the sounds the child makes, clarifying words and responding and answering questions. Being a good listener. Infants between 3 and 5 months babble when no one is around. After 5 months of age an infant will no longer babble unless there is someone to respond to her or him.
    d. Filling the child's world with sounds, tones, rhythms, auditory stimulation.
    e. Modeling speech from which the child will copy sounds, words and extract the rules of speech.
    f. Making it necessary for the child to express their needs for every day transactions.
    g. Asking the child questions. Particularly questions that develop reasoning and logic. The most basic of these questions is "Why?". If a child is not asking "why" a parent should be. A child is capable of understanding much more complex concepts than he or she can express.
    h. Expanding the child's language by extending the conversation either initiated by the parent or the child and extending the description of the properties or complexities of a particular object, activity or experience.
    i. Exposing the child to a world of language--reading to the child, having the child be a part of family meals, taking the child on family trips and outings and having the child spend the majority of the day where quality verbal stimulation is the rule not the exception.

Mental Development.

1. The "set" for learning is established by 3 years of age if not before, therefore the parents are the child's most important teacher.
2. The parents, as teachers, must design and organize an environment for the child that provides the child with experiences to attain developmental milestones by integrating the maturation of the central nervous system and experiences which stimulate the central nervous system.
3. During the period from birth to six years of age when the parents totally play the role of teacher there are "critical periods" the child passes through in which new behaviors are learned more easily and quickly. They are opportune times for learning a particular skill. The parent's challenge is to match the child's particular period of development to the objects, experiences and parental response to that stage of development.
4. Parents must be able to identify where their child is in the developmental stages and provide rich and varied experiences for the child in that stage as well as

providing experiences that will "stretch" the child's intelligence on to a new level of achievement.

5. Some infants are visual learners, others auditory, others tactile and most a combination of all three or two. The primary mode of learning should be capitalized on while strengthening the weaker modes. In some children the weak or ineffectual mode of learning may have to be circumvented eventually.
6. Everytime that a young child touches, moves, looks, listens, smells and tastes they are adding something to their store of knowledge about themselves, their family and the world at large.
7. Parents should provide their child with an environment that:
   a. Is organized.
   b. Has a variety of objects, activities and experiences of quality which provide stimulation for all of the 6 senses.
   c. Is grounded in reality.
   d. That has routine and structure.
   e. Has the attention, interest, enthusiasms and encouragement of the parent.
   f. Sets limits.

2. Understanding

Impatience, frustration and a lack of understanding of a child often stems from their lack of knowledge about the sequence of development of their child and that this sequence is pretty much the same in every other child. Just this little bit of knowledge can make the job of being a parent more pleasurable and exciting as the parent watches the "unfolding" of the child.

Questions. Using your developmental milestone chart see if you can solve the following problems: (dittos 110-121)

1. The child is 1 month old. The parents try to give the infant a rattle to hold and play with. The infant will not take it. They are discouraged with her lack of interest. What is the problem?

2. The child is 2 months old. The parents hang a mobile 3 feet above the infant's bed. The infant does not seem to notice it. The father tells the mother the mobile is a waste of money. What is the problem?

3. The child is 3 months old. The mother is cooking dinner while the infant sits in an infant seat nearby. The baby smiles, follows the mother with his eyes, coos when the mother gets near him but she is totally involved in getting a meal on the table. After about ten minutes of this the infant begins to cry. What is the problem?

4. The child is 4 months old. Grandmother comes to visit and the baby takes one look at grandma and begins to screech. The parents and the grandmother are upset. What is the problem?

5. The child is 6 months old. The child has a beautiful playpen filled with toys as is her room. The parents cannot understand why their child is not content with all the beautiful toys they have so generously bought for her. What is the problem?

6. The child is 8 months old. He pulls himself to a standing position continually, stands for 3 minutes and then howls for mother or father. Each time he does this the parents yell "Get down, sit down." Their anger is increasing. What is the problem?

7. The child is 10 months old. When the father comes home from work the mother asks the child, "Who is this?" The child says wa-wa, wa-wa, wa-wa over and over again. The father is discouraged that his baby won't call him da-da even though he can say da-da. What is the problem?

Each of the above incidents and many others occur in the raising of a child. With a little knowledge about the stage of development of the child impatience and frustration can be decreased. Answers to questions 1-7 can be answered by consulting the developmental chart for the age and behaviors of the child.

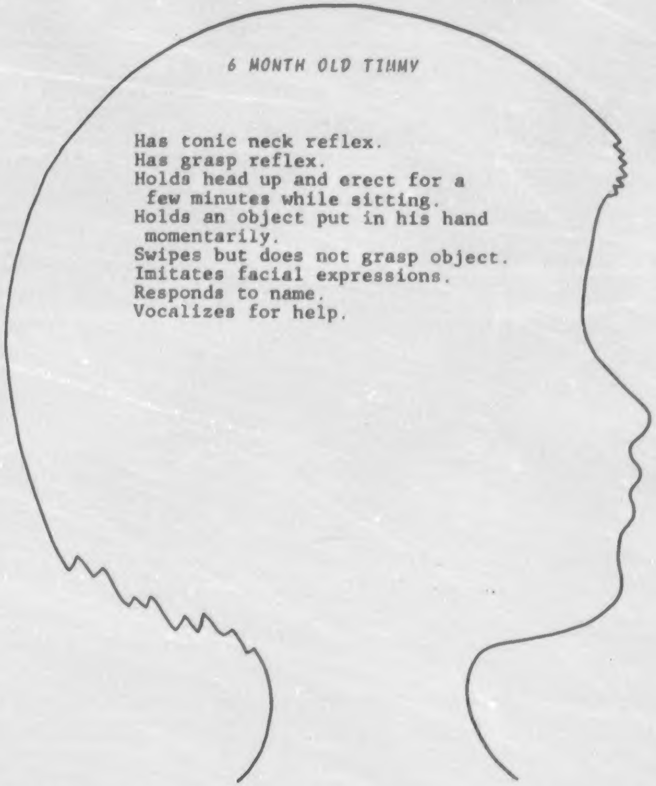
3. Developmental Lag

There are many formal testing instruments which screen and assess young children's motor, social, language and mental development but it is usually the parents who must first determine that their child is not achieving developmental milestones such as the ones outlined on your chart. Parents may be able to catch a lag at a much earlier date than a physician or an educator so that appropriate help can be sought for the child in order that valuable learning time is not lost.

If a child is consistently behind in one or more areas of sequential development or if all areas of development lag behind normal milestones the parents should not hesitate to obtain professional evaluation and help for their child. The failure of an infant reflex to disappear may indicate a defect in brain function. If high risk infants are detected early and put in a program where experiences are appropriate to the problems of the child and the parents are advised about the particular needs of their child, the child may be able to enter school with an improved capacity for learning.

Have four students volunteer to read a profile of a child prepared from dittos 123 through 126. With the students decide if each child profiled does or does not need evaluation and help.

Profile #1.



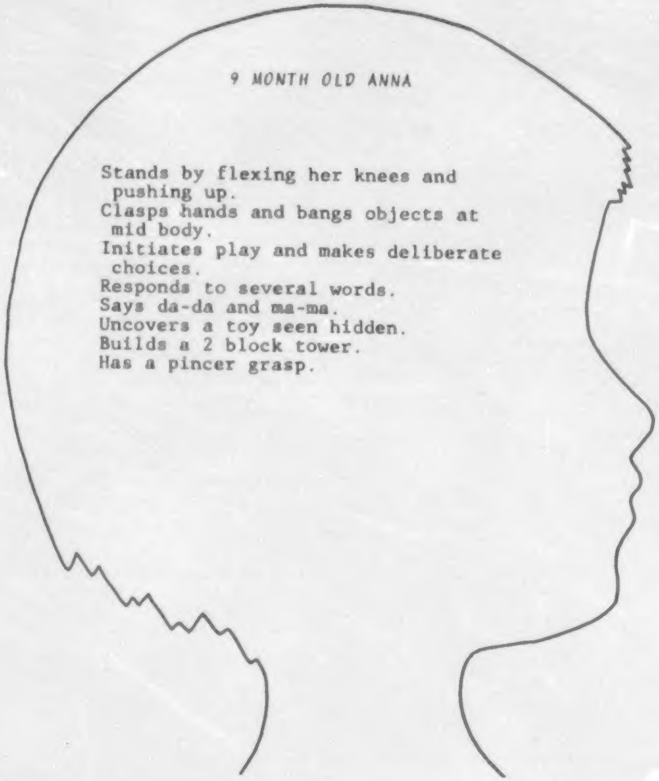
6 MONTH OLD TIMMY

Has tonic neck reflex.
Has grasp reflex.
Holds head up and erect for a few minutes while sitting.
Holds an object put in his hand momentarily.
Swipes but does not grasp object.
Imitates facial expressions.
Responds to name.
Vocalizes for help.

Do my parents need to seek help to evaluate my progress? Why or why not?

Yes. Timmy is developing normally socially and emotionally but definitely is several months late in losing his grasp and tonic neck reflexes.

Profile #2.



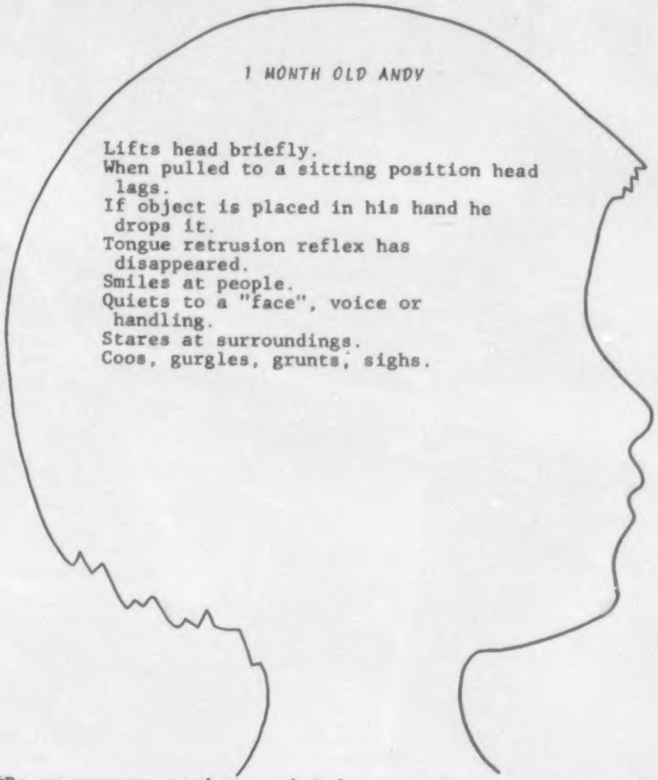
9 MONTH OLD ANNA

Stands by flexing her knees and pushing up.
Clasps hands and bangs objects at mid body.
Initiates play and makes deliberate choices.
Responds to several words.
Says da-da and ma-ma.
Uncovers a toy seen hidden.
Builds a 2 block tower.
Has a pincer grasp.

*Do my parents need to seek help to evaluate my progress? Why or why not?

No. Anna is very even and normal in her development arriving at developmental milestones very much as most other children do.

Profile #3.



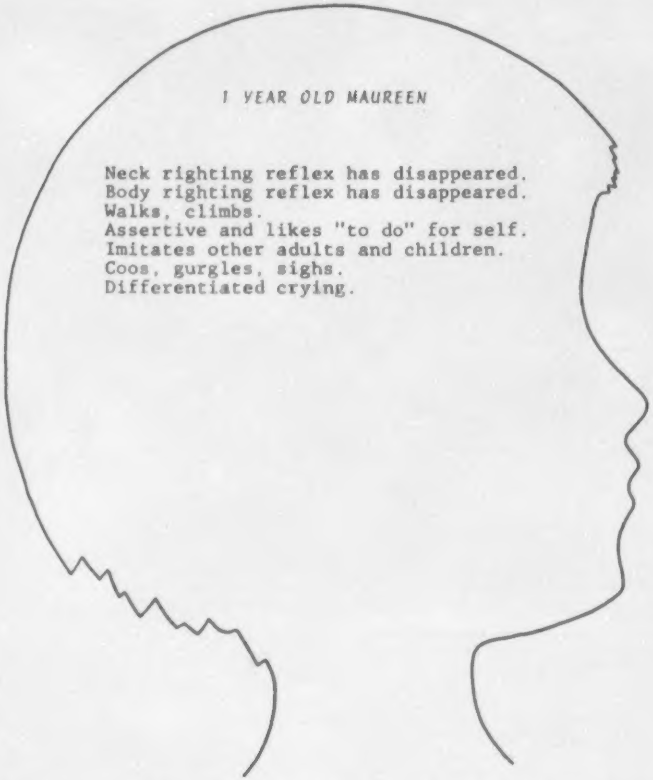
1 MONTH OLD ANDY

Lifts head briefly.
When pulled to a sitting position head lags.
If object is placed in his hand he drops it.
Tongue retrusion reflex has disappeared.
Smiles at people.
Quiets to a "face", voice or handling.
Stares at surroundings.
Coos, gurgles, grunts, sighs.

*Do my parents need to seek help to evaluate my progress? Why or why not?

No. Andy is developing at a normal rate and is progressing rapidly.

Profile #4.



1 YEAR OLD MAUREEN

Neck righting reflex has disappeared.
Body righting reflex has disappeared.
Walks, climbs.
Assertive and likes "to do" for self.
Imitates other adults and children.
Coos, gurgles, sighs.
Differentiated crying.

*Do my parents need to seek help to evaluate my progress? Why or why not?

Yes. Although Maureen's motor and social development are progressing normally her language is that of a 2 month old.

If a child is showing a developmental lag a parent could seek assistance in the evaluation of their child from one of these resources. Pass out ditto 127, Assistance for Parents With A Child Showing Developmental Lag. Go over the resources available as outlined on the ditto.

#2. *The parent of a growing child in their role as teacher should obtain and use good books on parenting to help them prepare an environment for their child that stimulates the neurons of the brain with a variety of experiences and encourages the child's attainment of developmental milestones.*

Pass out dittos 128-130, Books Which Help The Parent In Their Role as Teacher.

#3. *Parents who are unable to provide adequate stimulation and good care for their infant should find a quality infant and child care program for their child to help them in their home or outside of the home or both. This quality help must start early - at birth - and be continued until the school years.*

#4. *Parents of minority students should request that an EXCEL program be started in their school.*

Project EXCEL is a tough self-help program for students and their parents. Jesse Jackson who was beside Martin Luther King Jr. when he died, fought for employment for blacks in Operation Breadbasket and is a leader in the civil rights movement, is also the father of five children. He knows the problems they face. Leadership, motivation and pride are the basics of EXCEL plus renewed cooperation among students, teachers and parents. Parents must pledge 4 things: to meet with the child's teacher and exchange phone numbers, to pick up report cards 4 times a year, to pick up test scores and to make sure their children study two hours a night without radio or television. His message to blacks trapped by poverty is that they must take responsibility for their own upward mobility and the quality of their lives - controlling their own destiny. EXCEL is a program which attempts to counter so many attitudes that develop because of the cycle of poverty: apathy, hopelessness and a lack of control over the future.

Jesse Jackson says:

"Many of us allow our children to eat junk, watch junk and then were surprised when they came out to be social junkies."

A believer in the responsibility of one generation to the next Jackson says:

"You're not a man because you can make a baby. It takes a man to raise one. Girls can have babies but it takes a woman to raise one."

If parents accept their role as teacher the future generation will not carry so many labels that read

MENTALLY RETARDED

Classroom Experience Options

1. Use the following pamphlets for discussion or emphasis:

   a. Getting to Know Your Newborn

   b. Parenting Insights

   c. Baby Chart

   All available from: ⬡ 17

   d. The Phenomena of Early Development
   Available from: ⬡ 28

   e. From Crib to Kindergarten, A Guide to Your Child's Development
   Available from: ⬡ 16

2. Show one or more of the following films for an in depth look and further understanding of a subject area:

   A. Families

      a. Title: Families
      Time: 9½ min. color film
      Content: Central to this animated film is the idea of the interdependence of all human beings everywhere. Subtly, it encourages acceptance of the concept that Margaret Mead has called "the family of man." The film also presents and develops the ideas that 1) individual families, too, are essential to children; 2) parents have helpers in raising children (older children, relatives, etc.); 3) some of the educational and care-taking jobs are delegated to non-relatives (teachers, doctors, etc.); 4) each child needs to have his own identity; and 5) a person, through heredity, is part of the "extended family" rather than exclusively of the "isolated nuclear family."
      Available from: ⊛ 16 Rental: $15.00

      b. Title: Development of the Child: A Cross-Cultural Approach to Cognition. 1975
      Time: 18 min. color film
      Content: This film rests on the theme that there is an invariant sequence of milestones in psychological development which is characteristic of all human beings regardless of the environment in which they live. A major effect of the environment is to slow down or speed up the emergence of these milestones. The important

elements in the environment include variety of stimulation, degree and amount of challenges, quality of contact with caretakers, and the degree of modernization is an important variable correlated with rate of cognitive development. Studies conducted in Japan, Kenya, and Northern Guatemala. Development of the Child Series.
Available from: 23 Rental: $11.25

B. Environment

a. Title: The Children Know GSC-1388
Time: 33 min. color film
Content: Explores the deep division in Andean society between rural and townspeople, which begins at birth, is perpetuated by the schools, and continues through life. Shows evidence of the discrimination in the physical condition of the malnourished and diseased children examined by a traveling doctor. Faces of Change series.
Available from: 18 Rental: $13.00

b. Title: Rearing Kibbutz Babies
Available from: 27 Rental: $30.00

c. Title: Infant Development in The Kibbutz
Available from: 27 Rental: $30.00

d. Title: Day Care of Kibbutz Toddler
Available from: 27 Rental: $30.00

e. Title: Development of Individual Differences
Time: 13 min. black & white film A-454
Content: This film reviews and illustrates what is known and generally accepted about the relative influence of the differences which result from heredity and environment.
Available from: 16

C. Developmental Sequences

a. Title: Behavior Patterns at One Year. ES-42
Time: 10 min. black & white film
Content: Presents a series of test situations revealing normal behavior patterns for the infant at 52 weeks. Interprets reactions displayed. Other test situations involve a cup and spoon, a cup and cubes, a pellet, a pellet and bottle, a ball, a ring and string, and a paper and crayon.
Available from: 18 Rental: $5.00

b. Title: Study in Human Development, Part I
Time: 19 min. black & white film H-84
Content: Shows the development of a normal boy in his home environment from six to thirty weeks of age. Includes his reactions to objects, various postures, early patterns of crawling and feeding, later development of manipulation, responses to sound-making objects, and improvements in postural and locomotor activities.
Available from: 18 Rental: $5.75

c. Title: Study in Human Development, Part 2
Time: 17 min. black & white film H-85
Content: Shows the same boy at forty-two weeks, twelve months, and fifteen months of age. Pictures his gross motor development, perceptual-manipulatory reactions to objects, and development of walking readiness. Shows simple tests for fine manipulation, for imitation, for stair climbing, and for early interactions with another child.
Available from: 18 Rental: $5.75

d. Title: Study in Human Development, Part 3
Time: 19 min. black & white film H-86
Content: Emphasizes the continuation of gross and fine motor development in the same boy and the beginnings of cooperative play, from nineteen to thirty-two months of age. He exhibits handedness, non-cooperative play, caution in descending a stairway, a lack of pattern in marking paper at the earlier level, and a development of cooperative play and patterned drawing at the later level.
Available from: 18 Rental: $5.75

e. Title: Development of the Child: Infancy
Time: 20 min. color film ESC-1309
Content: Examines behavior and cognitive patterns which are characteristic of the first 18 months of life. Includes visual cliff perception, object permanence, perception of faces, perceptual preference, separation anxiety, and differences in infant temperment. Discusses briefly the Harlow mother-surrogate experiments. Begins with stills of childbirth.
Available from: 18 Rental: $11.75

f. Title: Causing Events to Occur-Development of Causality ID307
Time: 27 min. black & white film
Content: Highlights the learning involved in the infant's development of the concept of causality, in three parts: (1) noticing and responding to interesting events; (2) making things happen; and (3) understanding what makes things happen.
Available from: 13 Rental: $20.00

f. Title: Development
Time: 33 min. color film
Content: This film presents a sampling of the current research methods in the study of human psychological development, exposing the viewer to a number of different areas of study and the psychologists who are working in these areas. Featured are Dr. Jerome Kagan, who explains and demonstrates inborn motor reflexes and some of the more complex perceptual responses in experiments with infants; and Sylvia Bell conducting Mary Ainsworth's "Strange Situations" experiment.
Available from: 5 Rental: $38.00

D. Emotional Development

a. Title: Psychological Hazards in Infancy
Time: 22 min. black & white film
Content: Stresses that learning in infancy can be hampered by inadequate stimulation, an insufficient amount of warm attention by adults, or child care that does not take into account the changing developmental needs of the infant.
Available from: 27 Rental: $13.00

b. Title: Rock-a-Bye-Baby
Time: 30 min. color film
Content: A study of the mother-child relationship, which examines some of the techniques psychologists use to study mothering practices around the world. The critical importance of touch and movement in young children is shown in several ways: 1) how monkeys raised in isolation from mothers develop human-like schizophrenia, 2) how children raised in orphanages, who have not been cuddled and carried, become listless and withdrawn, and 3) how premature babies, missing the motion of the mother's body, lag in development.
Available from: 14 Rental: $20.00

c. Title: Emotional Ties in Infancy
Time: 12 min. black & white film
Content: Shows the importance of strong emotional ties between infant and adult by comparing four infants from eight to ten months old.
Available from: 24

d. Title: Growth Failure and Maternal Deprivation
Time: 28 min. black & white film
Content: A 13-month-old infant is shown within a few hours of her admission to the Child Study Center where the staff has been alerted to her special need for "tender, loving care." As she is fed, some of her development shortcomings are described and her social history is given. The essential features of her growth and development failure are pointed out as they appear over a period of seven weeks. Her capacity to function is shown to be dependent upon her emotional attachment to the nurses.
Available from: 16

e. Title: Person to Person in Infancy
Time: 21 min. black & white film
Content: In a striking portrayal, this film stresses the importance of relationships between infant and adult. It shows that in group care, as well as home care, there can be a considerable range of warmth and adequacy of relationship.
Available from: 27 Rental: $13.00

E. Language Development

a. Title: Learning To Talk: An Introduction to Language Development in Infancy
Time: 25 min. black & white film ID303
Content: The language of infants is traced from very early attempts to make sounds through the successive steps that finally result in the use of words and phrases.
Available from: 13 Rental: $21.00

b. Title: Language Development
Time: 20 min. color film
Content: Based on recent studies of language acquisition this film notes that children worldwide progress through the same sequences of language stages at about the same rate. Through animation, we see how an infant progresses vocally in the first few months, followed by a presentation of various research experiments involving language acquisition in youngsters.
Available from: 5 Rental: $35.00

F. The Newborn

a. Title: Newborn
Time: 28 min. color film
Content: Beautifully designed to help give new parents confidence through understanding. The film covers the first three months of life.
Available from: 20

b. Title: Baby Meets His Parents A-261
Time: 10 min. black & white film
Content: Clearly points out how differences in personalities can be accounted for not only by heredity, but also by the human relationship and environmental factors experienced during the first years of life.
Available from: 16

c. Title: Gabriel Is Two Days Old
Time: 16 min. black & white film
Content: Made in a hospital 2 days after the birth of Gabriel, there is relaxed interplay between the new mother, Dr. Brazelton, and Gabriel.
Available from: 9 Rental: $15.00

d. Title: Baby Goes Home A-394
Time: 20 min. black & white film
Content: This film informs parents about sleeping, bathing, and feeding the baby after the family has come home from the hospital.
Available from: 16

e. Title: The First Two Weeks of Life
Available from: 29

G. Infant to Three Year Old

a. Title: How Babies Learn P-89
Time: 27 min. color film
Content: The film demonstrates, with spontaneous and unrehearsable charm, many important aspects of infant development from the grasping, sucking, rooting, and other reactions of the early weeks to more complicated behavior such as block handling, sitting and crawling; and finally to the integrated skills of walking, manipulating objects, remembering, and imitating speech sounds at the year's end.
Available from: 16

b. Title: Infancy P-122
Time: 19 min. color film
Content: How does an infant put together all the concepts needed to cope with his surroundings, to maneuver his environment, to communicate? What tools is he given? What must he acquire? Infancy reports the latest information from leading researchers on these most remarkable processes. In an experimental setting and in natural home environments, the film shows babies at different ages exploring and discovering the real world, learning the nature and permanence of objects.
Available from: 16

c. Title: From Creeping to Walking ES-44
Time: 19 min. black & white film
Content: Analyzes the mechanics of locomotion and the stages by which the infant gradually attains an upright, walking posture. Points out various stages where natural, unassisted infant action makes for best progress. Illustrates how attained abilities are related and how some are normal outgrowths of others. From Gesell Series.
Available from: 18 Rental: $5.00

d. Title: Child Care--The First Year P-74
Time: 18 min. color film
Content: Provides information on the care of babies during the first year-bathing, breast feeding, formula preparation, bottle feeding, accident prevention, illness, inoculations, etc.--all are given in relation to parent responsibility.
Available from: 16

e. Title: Babies and Their Parents ID301
Time: 20 min. black & white film
Content: Explores how babies acquire skills and pass through different stages of understanding during their first two years. The parent's role in supporting early learning is presented.
Available from: 13 Rental: $18.00

f. Title: Infancy ESC-1307
Time: 18 min. color film
Content: Surveys the physical, perceptual, emotional, social, linguistic, and cognitive development of human infants from birth to 18 months of age. Explains through animation and observation of children, that the skill acquisitions most important to learning are locomotion and language. Shows a variety of experiments including the baby monkey-cloth/metal doll experiment.
The Developmental Psychology Today Film Series.
Available from: 18 Rental: $10.75

g. Title: Early Learning: An Introduction To The Stages of Development in Infancy ID302
Time: 26 min. black & white film
Content: Presents an overview of cognitive development during infancy. Illustrates the six stages of the sensorimotor period of development and provides a practical view of things babies generally do and learn at each stage.
Available from: 13 Rental: $21.00

h. Title: Posture and Locomotion ES-48
Time: 10 min. black & white film
Content: Deals with the steps by which the infant advances from a helpless stage of immaturity in which he only kicks and wriggles to the stage where he is able to change position and posture at will. Shows the development of a child from eight to eighty weeks. In a consecutive biographic series thirteen age levels are shown.
From Gesell Series.
Available from: 18 Rental: $5.00

i. Title: The Child: Part I
Time: 29 min. color film
Content: This film provides a close-up view of the growth and development of three infants from the time of their birth to the time they are two months old. Its subtle, sparse narration and documentary style offer a rare opportunity for the viewer to observe, without lecture and in intimate detail, what transpires in the lives of the children and their parents in the course of the first eight weeks after birth.
Available from: 5 Rental: $20.00

j. Title: The Child: Part II
Time: 28 min. color film
Content: This film traces the development of three children from the time they are two months old to the time they are fourteen months old. It reveals the world in which a baby first begins to make important discoveries about him/herself and the immediate environment. We watch these children's attempt to master such basic skills as eating, walking, and communicating. By the end of 14 months, they have begun to develop distinct personalities, each exhibiting a will of his or her own and frequent, sometimes unpredictable, changes of mood.
Available from: 5 Rental: $20.00

k. Title: The Child: Part III (12-24 months)
Time: 29 min. color film
Content: This film records the development of two children in their second year of life. At the age of 12 months, the children are still preoccupied with the mastery of physical skills. But as these skills become less of a problem for them, the acquisition of language starts to play a major role in their lives.
Available from: 5 Rental: $20.00

l. Title: Childhood: The Enchanted Years
Time: 52 min. color film (two reels)
Content: Documents the development of the infant from complete dependency at birth to being a child with a self-determined will and discernable adult characteristics. Physical growth and development are outlined, along with research on the mental development of children.
Available from: 18 Rental: $20.00

m. Title: Opportunities for Learning ID308
Time: 27 min. black & white film
Content: Illustrates the process of exploration

and discovery that is characteristic of most one and two year-olds by following the activities of one child through a series of play situations.
Available from: 13 Rental: $22.00

n. Title: Development of The Child: Infancy 1972
Time: 21 min. color film
Content: Illustrates the stages of development characteristic of the first eighteen months of life. The behavior and cognitive patterns shown include object permanence, stranger and separation anxiety, reaction to discrepancy, and maturing of coordination. Also treats individual differences in infant temperment. Produced in cooperation with Jerome Kagan and Howard Gardner, Harvard University.
Available from: 23 Rental: $8.00

H. Beyond Three

a. Title: Doctor Spock
Time: 26 min. black & white film
Content: Presents the theories and practice of Dr. Spock and his suggestions to parents for dealing with children from infancy to the age of 6.
Available from: 16

b. Title: Your First Six Years ESC-1099
Time: 9 min. color film
Content: Shows young children considering their abilities, self-expression, emotional growth, and learning during the first six years of life. Uses the activities of children of different ages at play, in school, and in their relationship to their parents to depict their changing attitudes and expanding roles. Emphasizes the role of the parent during child development. Family Living and Sex Education Series.
Available from: 18 Rental: $6.25

c. Title: The World of Three ES-947
Time: 26 min. black & white film
Content: Records the daily activities of a three-year old as he tries to relate to and interact with his surroundings. Includes situations demonstrative of his play patterns, awareness of sounds, reaction to a new baby, mischievous adventures, and need for love and security. Concludes with a scene which illustrates the child's need for affection and security. 1967
Available from: 18 Rental: $10.50

d. Title: Development ESC-1162
Time: 32 min. color film
Content: Traces human psychological development from birth through adolescence using experimental situations and vignettes depicting several developmental stages. Records inborn and perceptual responses to strange situations and examines speech development in infants. Explores the value of nursery school in developing self worth, language development in theory and practice, moral development processes, and the fermentative adolescent stage. From Psychology Today Film Series. 1971
Available from: 18 Rental: $14.00

e. Title: Development of The Child: Cognition
Time: 29 min. color film 1972
Content: Illustrates how the basic cognitive processes-perception, memory, evaluation, generation of ideas, and reasoning-change with development. Examines Piaget's description of the major cognitive stages: sensory motor, pre-operational, concrete-operational, and formal operations. Illustrates each of the stages. Produced in cooperation with Jerome Kagan and Howard Gardner, Harvard University.
Available from: 23 Rental: $10.25

I. Parenting

a. Title: A Special Kind of Mother ID310
Time: 15 min. black & white film
Content: Features and is narrated by a mother and focuses on special skills a mother can learn, including understanding, interpreting, and acting upon her child's needs.
Available from: 13 Rental: $16.00

b. Title: Fun With Dad
Time: 28½ min. color film
Content: Thinking game for waiting in the clinic, comparing footprints at the beach; sick-at-home activities; play dough, macaroni jewelry and printing; parent/infant interaction; growing a kitchen garden; dealing with fear of the water; a sampling of self-help experiences; helping grandma.
Available from: 31 Rental: $15.00

c. Title: Child/Parent Relationship 1975
008673/RL
Time: 28 min. color film
Content: Discusses infant stimulation and grandmother/child relationships. Shows games children can play with parents, such as supermarket and shoe store scenes, home math activities, storytime and puppetry, helping a working mother with cooking, and self-help ideas. From the Look At Me Series.
Available from: 31 Rental: $12.50

d. Title: Grandmother and Leslie
Time: 28½ min. color film
Content: Word game for a long car ride; sorting the groceries; imaginative shadow play between a father and son; home math experiences; infant/sibling/grandmother interrelationships; language development through storytelling and puppetry.
Available from: 31 Rental: $15.00

e. Title: Everyday Parenting
Time: 28½ min. color film
Content: A sensory game for a bus ride; color, size and shape discrimination at the grocery store; talking together on a park bench; math concepts with tin cans; experimenting with bathtub boats; and role-playing in a "dress-up" sequence.
Available from: 31 Rental: $15.00

f. Title: The Working Mother
Time: 28½ min. color film
Content: Sorting and matching in the laundromat; a counting experience while walking in the city; making a telephone; exploring nature on a family picnic; writing a "book" based on a paper airplane experience; helping a working mom with cooking; creating a rhythm band. 31
Available from: Rental: $15.00

g. Title: The Single Parent
Time: 28½ min. color film
Content: A Spanish-speaking family fitting shoes; learning math at the fast-food counter; infant stimulation; sensory experiences; tasting, smelling, listening; overcoming fear of dogs; the single parent's feelings about herself and her children; a do-it-yourself birthday party; enjoying storytime.
Available from: 31 Rental: $15.00

3. Invite a speaker to class:

   a. A psychometrist to speak about the measurement of infant development. Have the psychometrist demonstrate the use of the Cattell or Bayley Infant Scales of Intelligence.

   b. A minority leader who was raised in poverty to give insights on the difficulties in breaking out of the cycle of poverty.

   c. A panel of mothers to discuss how they prepare a learning environment for their children.

   d. A Home Start worker to speak about their job and the obstacles they encounter.

   e. A father or mother of a mildly retarded child to explain why and when they first suspected their child was mentally retarded and how their fears were confirmed.

   f. A preschool teacher to discuss the goals and program of a good preschool class.

   g. A mental health professional to stress the importance of good early relationships between mother and child and the effects of maternal deprivation.

   h. A speech and hearing therapist to discuss how early language begins and the common problems that inhibit language development.

   i. A learning disabilities teacher to illustrate modes of learning.

4. Survey the class to find out:

   a. How many students have had experience in caring for young children. What experiences have they had?

   b. How many students come from a family in which grandmothers, grandfathers, aunts, uncles and cousins share in nurturing the family's children?

5. Reports:

   a. Have a student read and report on Bruno Bettelheim's Children of The Dream, Avon Books.

b. Have a student read and report on Victor of Aveyron included in Wolf Children by Lucien Malson, Monthly Review Press.

5. Observation:

Invite 3 or 4 mothers and their infants to class to play with their children while the students observe them. Ask the mothers to bring some toys or objects for their child to play with. Discuss the experience.

6. Projects:

   a. Have the students work in small groups to design a a room for a child of a particular age - under 6 - which would allow for the child's pleasurable exploration of the environment.

   b. Provide ordinary objects for small groups of students for them to
      1) Think of all the things they could tell a small child about the object.
      2) Think of all the things they can do with the object with the child.

7. An extension of parenting skills. Use one of the curriculums below to extend this course of study on responsible parenting:

   a. FEED - Facilitative Environments Encouraging Development

   Child development, child care services are all subjects dealt with in the FEED Curriculum. The practical experience of caring for normal and handicapped infants and children is supplemented by classroom work that draws on commercially available material. An excellent program.

   Available: FEED
   c/o Institute for Child Study
   East Tenth Street and Bypass 46
   Bloomington, Indiana 47401
   (812) 337-1732

   b. Infant Development Program

   Order form and brochure describing a new program designed to guide parents in helping their baby develop his full potential during the important first year of life. Program includes 416 page illustrated book and developmental toys. Nominal charge for program.

   Available from: Johnson and Johnson
   Baby Products Company
   220 Centennial Ave.
   Piscataway, New Jersey 08854

   c. Teaching Mother's Mothering

   by Herbert Yahraes
   National Institute of Mental Health

   Available from:
   Superintendent of Documents
   U.S. Government Printing Office
   Washington, D.C. 20402
   Stock # 017-024-00-691-1

   d. Education for Parenthood Program

   Curriculum and Evaluation Guide

   Available from:
   E. Dollie Wolverton
   Systems Development Branch
   National Center for Child Advocacy
   Children's Bureau
   Administration for Children, Youth and Families
   P.O. Box 1182
   Washington, D.C. 20013
   (202) 755-7816

   e. Family and Community Health Through Care Giving

   STARTING A HEALTHY FAMILY: Choosing Parenthood, Families with Special Needs, Children, Families and Futures: Helping Self and Others

   Available from:
   Educational Development Center
   55 Chapel Street
   Newton, Massachusetts 02160

8. Have students make a notebook out of the dittos handed out in class to save for future reference.

Outside Classroom Experience Options

To be used as an experiental reinforcement or extension of the classroom presentation.

1. Visit a hospital newborn nursery to observe the infants. Discuss their differences and similarities in appearance. Discuss the different environments that await the infants when they leave the hospital.

2. Arrange for students who would like the experience of working with young children to volunteer at a nearby preschool program for a few hours a week.

3. Using the Chart of Developmental Milestones have students who have families with children under one or friends with children under one observe the child and pinpoint where they are developmentally in relation to motor, social-emotional, language and mental development.

4. Using newspapers and telephone books have the students tabulate parenting classes available in the community and agencies that serve families and children.

5. Visit a traditional nursery school, a Head Start Program and a Montessori Preschool Program. Compare and discuss the three programs.

6. Have a small group of students make a list of preschool programs available in the community, the age of the children served and the qualifications of the staff.

7. Have students divide into groups and tabulate things available in stores other than toys which could be used to provide stimulation to an infant under one year of age.

8. Using the Chart of Developmental Milestones have some of the students make a toy which would be appropriate to a particular age level of child and geared to develop a particular skill.

9. Observe young children in a facility that has programs for the mentally retarded. Have the students try to pinpoint where a young child is functioning on a developmental scale.

10. Visit a mental health facility in the community. Ask someone at the facility to talk to the students about the importance of developing good interpersonal relationships, parent to child, at a very young age.

11. Have several students visit 3 bookstores and count how many books are available on raising children in each store. Ask them to look at any of the books listed on the handout "Books Which Help The Parent in Their Role as Teacher."

12. Divide the class into small groups and have each group visit a different type of special education class.

13. Assign the task of writing to find out what day care centers are licensed in your community.

    Day Care Supervisor
    Department of Public Welfare
    100 N. Senate Avenue, Rm. 701
    Indianapolis, Indiana 46204

Action Checklist

Pass out the Action Checklist to summarize this area of study. (Prepared from dittos 131 & 132.)

In my role as teacher of the growing child I will:

____ Utilize an outline of the sequential development of the motor, social-emotional, language and mental aspects of my growing child to better understand my child.

____ Utilize an outline of the sequential development of the motor, social-emotional, language and mental aspects of a growing child to guide me in providing experiences that stimulate and help my child move through the sequences of mental growth.

____ Utilize an outline of the sequential development of the motor, social-emotional, language and mental aspects of a growing child to determine any serious developmental lags in my child so that I can obtain help in providing the appropriate experiences for my child.

____ Obtain and use a few good books on parenting to help me prepare an environment for my child that will stimulate the neurons of my child's central nervous system with a variety of good experiences that encourage the child's attainment of developmental milestones.

____ Attend "parenting" classes offered by community agencies, colleges or schools to improve my skills in carrying out my role as a teacher and parent.

____ Find a quality infant or child care program for my child to help me in the home, outside of the home, or both in the first few weeks of my child's life until school age if I cannot provide adequate stimulation and nurturance for my child on my own.

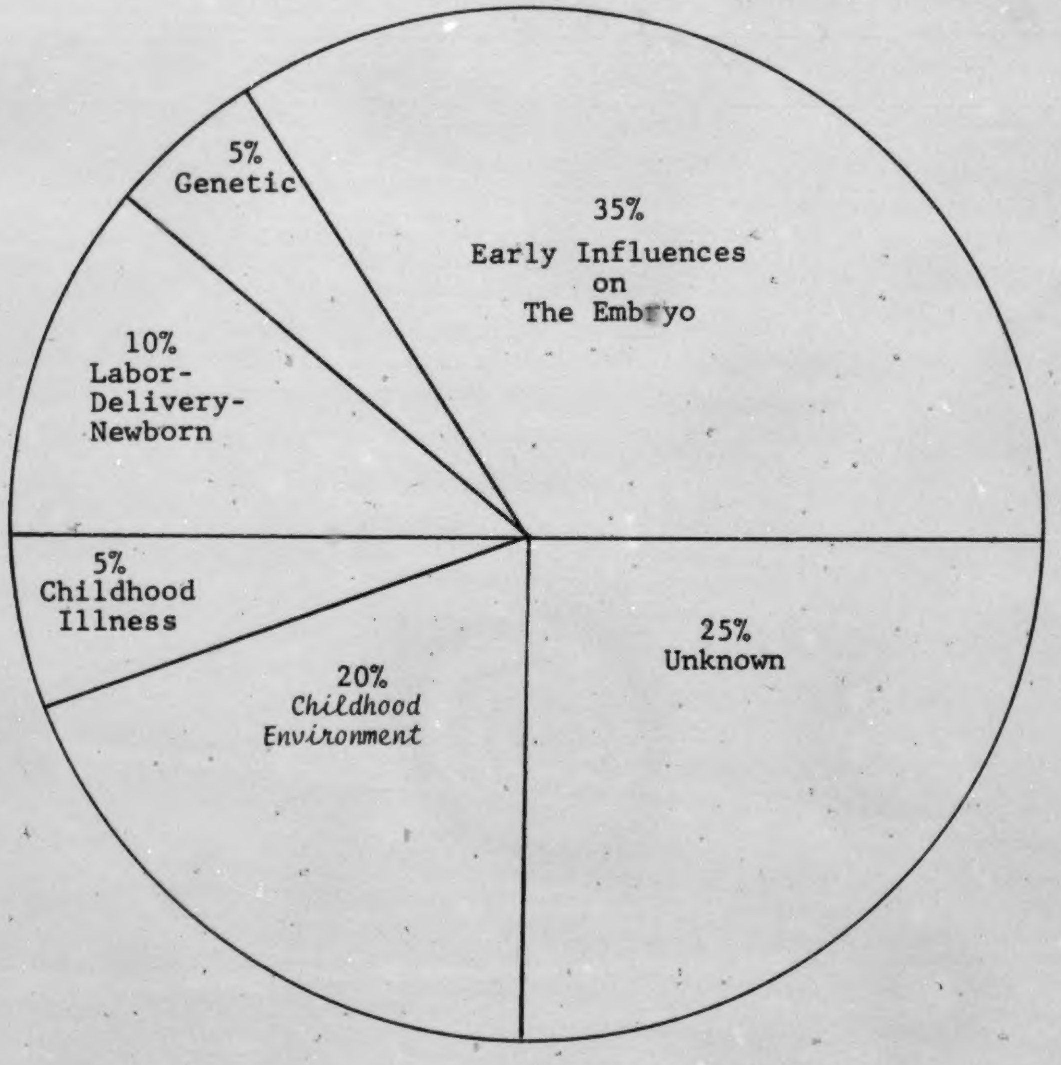
____ Ask that an EXCEL program be started in my child's school if I am from a minority race.

⇨ Post Test

Give the same test used in the pretest. Let the students see how many answers they did not know originally that they can now correct. Use as an in class or take home test. Determine the individual and class gains.

Ditto 9º

The Pie of Causation



IV. The Role of Teacher

Ditto 100

Neuron Discs 381

Sensory
Receptor-
Ears

An infant lying in a bassinet hears a door slam. (Take your disc to a sensory neuron.)

Neuron Disc #1

Sensory
Receptor-
Ears

The footsteps of the approaching person are different than the footsteps of the mother's. (Take your disc to a sensory neuron.)

Neuron Disc #2

Sensory
Receptor-
Ears

The voice the infant hears is deep and different from her mother's. (Take your disc to a sensory disc.)

Neuron Disc #3

Sensory
Receptor-
Ears

The infant hears the deep voice talking to the voice that talks to her while she is being cared for. (Take your disc to a sensory disc.)

Neuron Disc #4

IV. The Role of Teacher

Ditto 101

Neuron Discs

Sensory Receptor-Eyes

A face leans over the bassinet. (Take your disc to a sensory disc.)

Neuron Disc #5

Sensory Receptor-Touch

The face kisses the infant. (Take your disc to a sensory disc.)

Neuron Disc #6

Sensory Receptor-Nose

The face has a smell all its own. (Take your disc to a sensory neuron.)

Neuron Disc #7

Sensory Receptor-Touch

The face feels rougher than the one who feeds her. (Take your disc to a sensory neuron.)

Neuron Disc #8

IV. The Role of Teacher

Ditto 102

Neuron Discs

Sensory
Receptor-
Ears

The deep voice asks "How's my girl today?" (Take your disc to a sensory neuron.)

Neuron Disc #9

Sensory
Receptor-
Ears

The voice then talks to the one who feeds her. (Take your disc to a sensory neuron.)

Neuron Disc #10

Sensory
Receptor-
Eyes

The light in the room around the infant is dim for this face always arrives home when the sun is setting. (Take your disc to a sensory neuron.)

Neuron Disc #11

Sensory
Receptor-
Nose

The smell of dinner cooking is different from all the smells the infant has experienced this day. (Take your disc to a sensory neuron.)

Neuron Disc #12

IV. The Role of Teacher

Ditto 103

Neuron Discs

Sensory
Receptor-
Ears

The soft voice says "This is your Daddy. He's missed you today." (Take your disc to a sensory neuron.)

Neuron Disc #13

Sensory
Neuron

The sensory neuron takes the sound the door makes to the brain. (Take your disc to an association neuron.)

Neuron Disc #14

Sensory
Neuron

The sensory neuron takes the feel of the father's face to the brain. (Take your disc to an association neuron.)

Neuron Disc #15

Sensory
Neuron

The sensory neuron takes the sound of the father's voice to the brain. (Take your disc to an association neuron.)

Neuron Disc #16

IV. The Role of Teacher

Ditto 104

Neuron Discs

Sensory Neuron

The sensory neuron takes the image of the father's face to the brain. (Take your disc to an association neuron.)

Neuron Disc #17

Sensory Neuron

The sensory neuron takes the feel of the father's kiss to the association neuron. (Take your disc to a sensory neuron.)

Neuron Disc #18

Sensory Neuron

The sensory neuron takes the smell of the father's face to the brain. (Take your disc to an association neuron.)

Neuron Disc #19

Sensory Neuron

The sensory neuron takes the feel of the father's face to the brain. (Take your disc to an association neuron.)

Neuron Disc #20

IV. The Role of Teacher

Ditto 105

Neuron Discs

Sensory Neuron

The sensory neuron takes the words of the father to the brain. (Take your disc to an association neuron.)

Neuron Disc #21

Sensory Neuron

The sensory neuron takes the words of the mother and father talking to the brain. (Take your disc to an association neuron.)

Neuron Disc #22

Sensory Neuron

The sensory neuron takes the light of the room to the brain. (Take your disc to an association neuron.

Neuron Disc #23

Sensory Neuron

The sensory neuron takes the smell of dinner cooking to the brain. (Take your disc to an association neuron.)

Neuron Disc #24

Ditto 106

Neuron Discs

Sensory Neuron

The sensory neuron takes the words of the father to the infant to the brain. (Take your disc to an association neuron.)

Neuron Disc # 25

Association Neuron

The association neuron takes the sound the door makes and connects it with 3 other bits of information received by the brain about the father. (Join hands with 3 association neurons.)

Neuron Disc # 26

Association Neuron

The association neuron takes the feel of the father's face and connects it with 3 other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #27

Association Neuron

The association neuron takes the sound of the father's voice and connects it with 3 other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #28

Ditto 107

Neuron Discs

Association Neuron

The association neuron takes the image of the father's face and connects it with 3 other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #29

Association Neuron

The association neuron takes the feel of the father's kiss and connects it with other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #30

Association Neuron

The association neuron takes the smell of the father's face and connects it with 3 other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #31

Association Neuron

The association neuron takes the feel of the father's face and connects it with 3 other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #32

IV. The Role of Teacher

Ditto 108

Neuron Discs

Association Neuron

The association neuron takes words of the father and connects them with 3 other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #33

Association Neuron

The association neuron takes the words of the mother and father talking and connects them with 3 other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #34

Association Neuron

The association neuron takes the light of the room and connects it with 3 other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #35

Association Neuron

The association neuron takes the smell of dinner cooking and connects it with 3 other bits of information about the father. (Join hands with 3 association neurons.

Neuron Disc #36

IV. The Role of Teacher

Ditto 109

Neuron Discs

Association Neuron

The association neuron takes the words of the father spoken to her and associates them with other bits of information about the father. (Join hands with 3 association neurons.)

Neuron Disc #37

Motor Neuron

The motor neuron receives all this information about the father and the impulse from the association neurons to the motor neuron results in a slight smile by the infant. (Collect all discs from the association neurons.)

Neuron Disc #38

Motor Neuron

The motor neuron receives all this information about the father and the impulse from the association neurons to the motor neuron results in a "coo". (Collect all discs from the association neurons.)

Neuron Disc #39

IV. The Role of Teacher Ditto 110

Developmental Milestones From One Week to One Year

Age In Months	Developmental Milestones From One Week to One Year			
	Motor	Social-Emotional	Language	Mental
1 Month	*Sucking reflex triggered by gently stroking lips or cheek close to corner of mouth. **Tongue Retrusion Reflex is disappearing. This reflex allowed for the expulsion of solid or hand objects as a protective device for the infant. *Neck righting reflex of body-head of infant (placed on back) rotated sideways causes body to rotate to follow head. *Body righting reflex of head-feet and legs of infant (placed on back) rotated sideways causes head to follow body. *Reflexive grasp-hand clenches on contact. **Tonic neck reflex-head turns toward outstretched arm with other arm flexed to shoulder is common position.	Positive response to comfort, negative response to pain. "A face" is a quieting influence. Stares at mother's smiling face. Grasps people and adjusts body to body of other person. May recognize voices.	Crying differentiated for pain, hunger. ** Reflexive vocalization of newborn changes and becomes related to stimulus. Responds to voice. Throaty sounds. Auditory awareness-stops or lessens movement when hearing a distinct sound.	Prefers patterns. From line of vision follows object or light side to side in arc of 90° and up and down. Quiets at seeing face. Cries deliberately for needs. Gaze becoming less starey and vague.

Developmental Milestones From One Week to One Year (Continued)

	Lifts head briefly. When pulled to sitting position head lags. Rolls part way to one side. Fisted hand. If object placed in hand drops it immediately.			
2 Months	*Moro reflex-startles reflexively. Holds head up and erect for a few seconds while sitting. Arms and legs make circling movements. Grasps purposefully. Holds object momentarily. Swipes at object.	Sucks to quiet self. Shows excitement and distress. Smiles at people. Regards a person deliberately and follows them with their eyes. Interacts with excitement, movement, vocalization. Quiets to "a face", voice or handling. Prefers people to objects.	Shows interest in sounds with facial expressions. Coos, gurgles, grunts, sighs. Vowel sounds make up the above. Mostly E and A but also U, I, H, K, G. Seven combinations of sounds expressed.	Stares at surroundings. Focuses on objects at 7-8" especially if objects are attractive. Anticipates objects and movement of objects. Tries to grab attractive objects. Contemplates hand. Repeats actions purposefully. Associates & discriminates

IV. The Role of Teacher Ditto 112

Developmental Milestones From One Week to One Year (Continued)

				people, tastes, voices, & objects.
3 Months	**Grasp reflex disappearing as hand remains open longer-palmar grasp. **Tonic neck reflex disappearing-head held more often in midline. *Supporting reflex-pushes against surface while standing. Moves head, arms, legs vigorously. More rigidity to body when picked up. Lifts belly and head when on stomach. Stands briefly when pulled to a stand. Reaches for object with both hands-sometimes with closed fist. *Labryntine Righting reflex of head-adjusts head to gravity with changes in body position.	Smiles immediately and spontaneously. Recognizes mother and responds with total body. Differentiates people. Signals to people with body & face. Tries to attract attention.	**Reflexive babbling disappears. Babbling sounds now made for their own sake-satisfaction of playing with sounds. Sustained cooing, gurgles, squeals, sighs. Variations in pitch and loudness. 13-14 different sounds expressed. Syllables of vowels and one consonant K, L, G. Listens to voices. Perceives syllable as a unit.	Concentrates and follows objects near or at a distance in arc of 180°. Reaches for object. Looks at rattle in own hand. Keeps object in hand purposefully. Waits for expected reward. Begins to differentiate people. Explores own body and movement. Begins to associate action with

Ditto 113 (Continued)

Developmental Milestones From One Week to One Year

				result. Aware that hands and feet are extension of self. With eyes searches for sound source. Begins integration of voluntary and involuntary actions as reflexes come under control of higher thought processes.
4 Months	**Tonic neck reflex dissapears - head more often in midline and limbs in symetrical position. **Startle reflex begins to disappear. **Sucking reflex comes under voluntary control. On tummy holds head 90° from surface and on back cranes neck forward keeping head in midline.	Knows familiar faces and may resent strangers. Anticipates people. Vocalizes mood. Interested in own image. Initiates socializing, plays games and sustains interaction.	Cooing and squealing have variation in pitch. Responds to talking with smiles, squeals coos. Continued babbling. Eyes search for speaker.	Regards object immediately. Grabs and manipulates object and hands. Is aware of their power on outside world. Transfers objects from one hand to another. Considers place

Developmental Milestones From One Week to One Year (Continued)

	Only slight head lag when pulled to sitting position. Raises hips, rocks, rolls from side to side or completely over. Stands erect when pulled to standing. Sits supported 10-15 minutes. Swipes at objects inaccurately. Hands touch in midline. Dagger grasp with fingers around object, thumb extended. Adjusts vision to varying distances.		Imitates a few sounds.	from which object was removed. Sustained interest in detail. Follows visual and auditory stimuli. Discriminates familiar and strange situations and unfamiliar people. Has preferred objects.
5 Months	Lifts chest and head high off surface (on tummy) and lifts head and shoulders (on back). No head lag when pulled to a sitting position. Rocks on tummy. Rolls from stomach to back. Stands supported.	Shows fear, dissatisfaction and anger. Imitates facial expressions. Initiates social contact by smiles and vocalization. Anticipates being held or picked up. Tries to interrupt a conversation.	Purposefully imitates sound. Imitates by watching mouth and listening to others. Makes 17 different sounds of vowels and a few consonants. Understands name.	Purposefully turns head toward sound or to disappearing object. Reaches for object with two hands. Holds one object. Studies object & hand and their

Developmental Milestones From One Week to One Year (Continued)

	Sits supported for long periods of time. Helps in pulling up body. Shovel grasp-opposition of thumb and fingers. Plays with object in hand.	Protects own objects. Smiles at mirror image.	Vocalizes to self. Vocalizes to gain attention.	relationship. Manipulation of objects increases touching, holding, turning, shaking, mouthing, tasting. Recognizes familiar objects. Purposefully imitates movements. Repeats actions which change or manipulate own environment.
6 Months	** Moro reflex disappears. On tummy lifts and extends legs. Turns, twists, bounces in all directions. Gets up on hands and knees, rocks, moves forward, creeps. When pulled to sitting assists in lifting head. Sits with slight support-balances well on extended hands. Stands with support.	Imitates facial expressions. Responds to name. Reaches out to strange children. Vocalizes for help. Prefers play with people.	More consonants interspersed with vowels-P,B,M added. Varied use of pitch and volume. Lalling-imitates own sounds from auditory feedback(vocal play). Actively babbles to exciting sounds. Grunts, growls, coos, gurgles,	Alternates hands to hold objects. Holds one object and reaches for and grasps another. Reaches deliberately for anything he sees and looks at it from different directions at length. Picks up dropped objects.

Developmental Milestones From One Week to One Year (Continued)

	Rotates wrist to manipulate objects. Scissor grasp-two fingers oppose thumb.		squeals, giggles laughs in response. Responds to intonation of adult voices. Recognizes familiar voices.	Senses hand-object relationship. Aware of parts of self and separateness from world. Reaches out to strange children.
7 Months	Lifts head as if wanting to sit up. Draws toes up to mouth. Creeps with object in one hand, may crawl. May pull self to stand. bounces and supports large portion of own weight. Sits with slight support of hands and may get self up to sitting position. Holds object in each hand and bangs them together.	Begins to tease and show humor. May fear strangers. Wants to be included in interaction. Wants to make small decisions. Discriminates angry and friendly talking. Sucks and chews on fingers and toes. Anticipates play. Plays with objects on own. Regards own image in mirror.	Vowels & consonants occur at random. Well defined syllables-ma, da, ba, di, mama, dada. Tries to imitate sound sequences.	Compares objects. Holds more than three objects. Transfers object from one hand to another. Interested in detail of objects and situations. Reaches for objects with one hand. Distinguishes near and far. Anticipates a signal of an event.

Developmental Milestones From One Week to One Year (Continued)

				Initiates imitating an act. Associates similar acts that he or she and another person do. May associate picture with person. Interested in consequences of own behavior.
8 Months	Crawls with one hand full. Propels self by bouncing, lunging, grabbing. Pulls self to standing but needs help getting down. Stands leaning against something or holding hands. Gets to sitting position. Sits alone for one minute.	Fears strangers. Follows mother & fears separation from her. Explores environment with security of her closeness. Quieted by mother. Does not want to be confined. Uses parents to get things. Regards image in mirror but does not touch it.	Lalls in great variety with intonation. Imitates mouth movements. Labels an object in imitation. Says Dada & Mama. Says 2 to 4 single words. Responds to familiar sounds. Begins to selectively recognize familiar words. Inconsistent matching of word to	May hold 3 objects. Reaches for objects out of reach persistently. Looks for objects he sees disappear. Explores the relationship of two objects positioning objects in a variety of ways. Recalls past events & own past actions.

Ditto 118

Developmental Milestones From One Week To One Year (Continued)

			action. Recreation of sound to replace or recall a pleasurable experience or object.	Anticipates events not dependent on own behavior. Develops sense of timing-structure of the day. Begins imitating people remembered. Relates own body movement to movement of others. Solves simple cause & effect problems by observation. Combines bits of knowledge and behavior into new responses. *Learning style emerges.*
9 Months	Crawls up stairs. May stand up by flexing knees and pushing up. Stands briefly and gets down from standing. Walks along furniture. Gets to sitting position and sits alone	Perceives mother (& perhaps other family members) as separate objects. "Performs" for the family. Protects self and possessions.	Definite intonation patterns. Imitates coughs, tongue click, hisses and sounds that are interesting. Uses words meaningfully,	Aware of vertical height. Builds a block tower. Matches 2 blocks. Explores objects from different body positions. Uncovers toy seen

Ditto 119

Developmental Milestones From One Week to One Year (Continued)

	for 10 minutes with control. May pivot in sitting position. Clasps hands, bangs objects at mid body. Pokes with index finger. Pincer grasp-tip of index finger opposes thumb.	Interested in other children & their play. Begins to try to figure out moods and motives of people. Initiates play & makes deliberate choices.	Dada, Mama-vocalizes needs. Repeats words over & over again. Listens intently. Responds to several words. Carries out simple commands.	hidden. Bored with repetition stimulus. Anticipates rewards, return of a person or object. Increased concentration, resists interruption.
10 Months	Crawls with straightened arms & legs & gets self to standing position by straightening limbs. Walks holding 2 hands. Gets on stomach from sitting. Holds 2 objects in one hand. Releases grasped object. Sits and pivots.	Shows many moods. Identifies body parts. Imitates gestures expressions, sounds. Beginning of sexual identity with parent. Aware of self in relation to approval and disapproval.	Number of consonants used increases. Combines words with gestures. Repeats words over & over to inappropriately answer a question. A few more words added to 6-18 word vocabulary. Interested in familiar words. Understands many words and commands.	Aware of limited distances & space. Reaches for toy without looking at it. Extensively explores objects with hands. eyes, ears, index finger. Searches for object seen hidden in various locations. Imitation accelerates. Senses self to be an object among others. Begins to have a dominant hand, foot, eye.

Developmental Milestones From One Week to One Year

11 Months	Gets to standing by flexing knees and pushing off. Stands while using hands, leans, pivots. Walks holding one hand. Holds and makes mark with crayon. Lifts spoon to mouth. Uses hands to do a number of things at once. Refined pincer grasp-tip of index finger opposes thumb.	Resists or tries to alter mother's goal for him or her. Assertive and likes "to do" for self. Starts to control own behavior seeking approval or disapproval. Shows guilt with disapproval. Teases and tests parents. Imitates other adults & children. Play is parallel-beside but not with other children.	Jargon-meaningful scrabbled words. Recognizes words as symbols for objects.	Explores containers and its contents. Uses different objects to achieve a goal. Increases knowledge of properties of particular things and objects. Places rings on towel, nests boxes. Increased imitation. Experiments with same act done by different sides of the body. Aware of consequences of some of his actions. Enjoys & relates to pictures.
12 Months	**Neck righting reflex disappearing. **Body righting reflex of the head disappearing.	Recognizes as well as expresses emotions. Fears strange people & places, prefers others.	Sound of language more adult. Aware that language causes reactions.	Uses objects in more complicated play and in combination. Stacks, rotates, displaces objects.

IV. The Role of Teacher Ditto 121

Developmental Milestones From One Week to One Year

Adds maneuvers to walking.

Climbs up & down stairs and in & out of things.

Sits "gently."

Prefers one hand.

May take articles of clothing off.

Holds cup to drink-self feeds.

Reacts deeply to separation from mother.

Sense of humor developing.

Affectionate to humans & objects.

Assertiveness & negativism increase.

Offers child or adult toy but does not release it.

Practices words.

Two to eight words used in short sentences and jargon.

Enjoys saying words that are made by objects.

Begins to classify objects by word attachment.

Listens with selected interest.

Imitates tower of 3 blocks.

Groups several objects by properties.

Searches for object even though has not seen it hidden but only remembers where last hidden.

Long term memory developing.

Remembers behavior which he or she imitates.

Increased problem solving by trial & error.

Differentiates people therefore trusts people differently.

Sometimes thinks before acting.

THE CHILD HAS WITHIN HIM WHAT HE/SHE IS TO BECOME. THE PERSON IS EMERGING.

IV. The Role of The Teacher Ditto 122

Age _____ Months	*Experience and Environment Ideas*		
Motor	Social-Emotional	Language	Mental

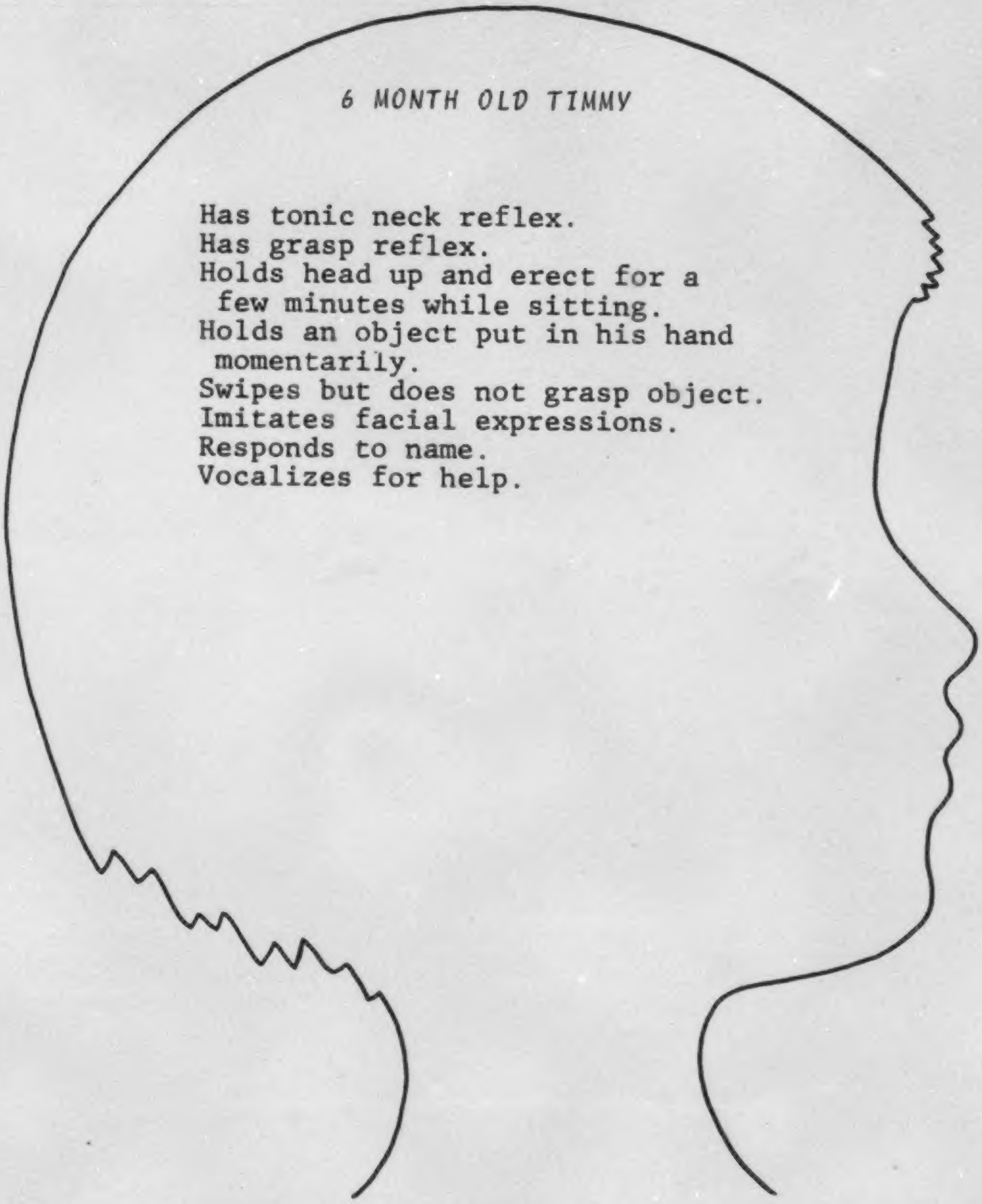
616

617

IV. The Role of Teacher

Ditto 123

Profile of a Child



6 MONTH OLD TIMMY

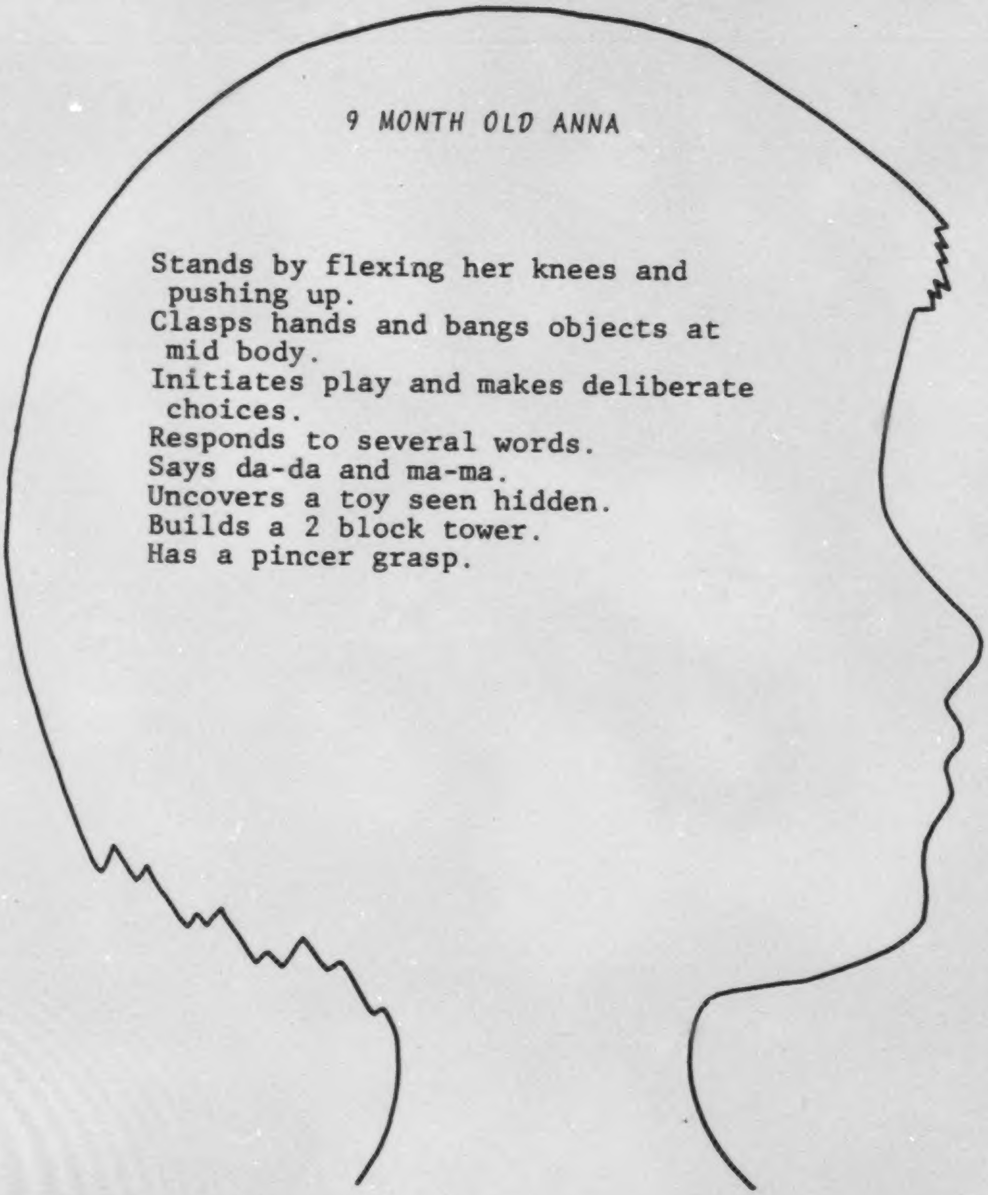
Has tonic neck reflex.
Has grasp reflex.
Holds head up and erect for a few minutes while sitting.
Holds an object put in his hand momentarily.
Swipes but does not grasp object.
Imitates facial expressions.
Responds to name.
Vocalizes for help.

Do my parents need to seek help to evaluate my progress?
Why or why not?

IV. The Role of Teacher

Ditto 124

Profile of a Child



9 MONTH OLD ANNA

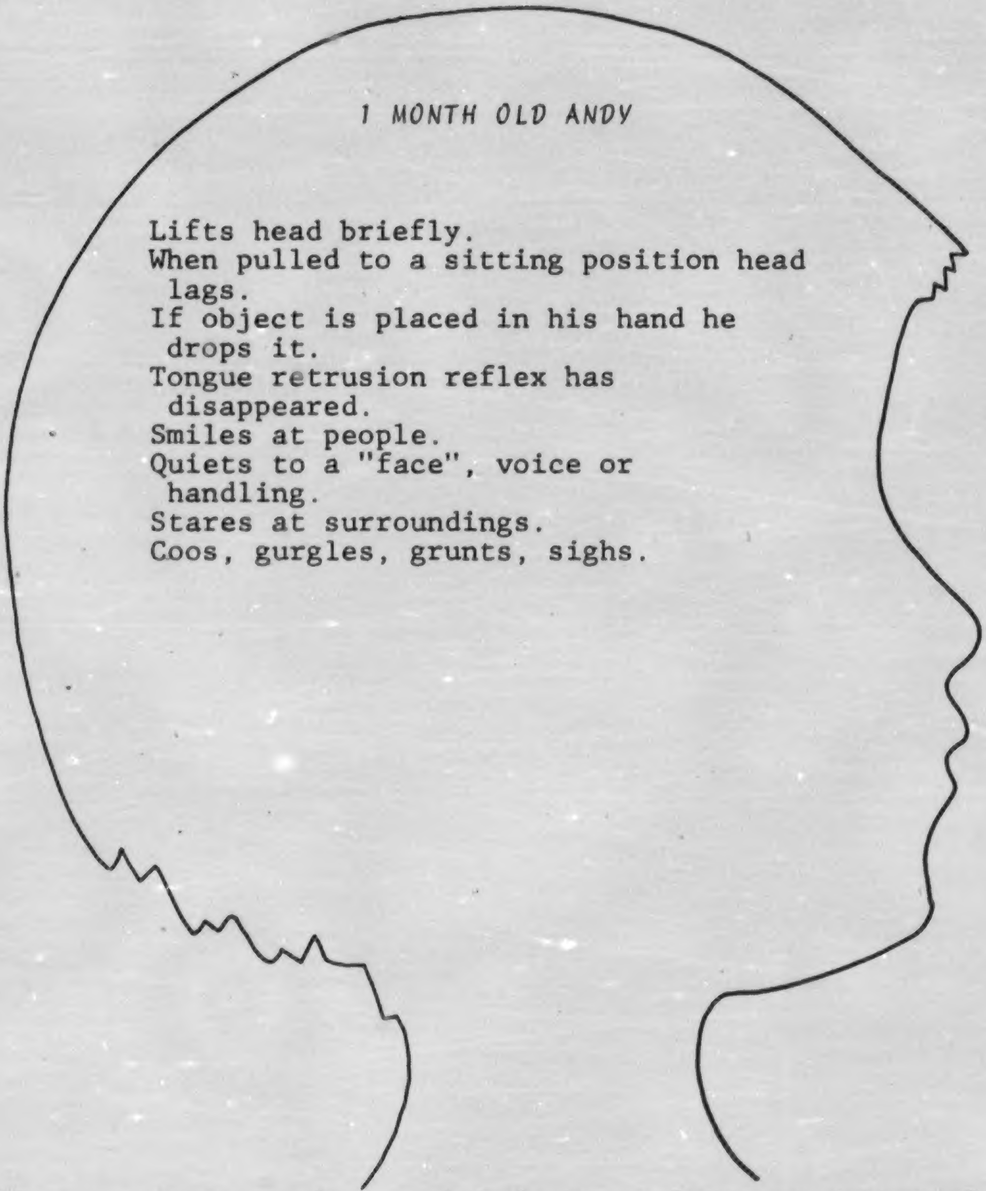
Stands by flexing her knees and pushing up.
Clasps hands and bangs objects at mid body.
Initiates play and makes deliberate choices.
Responds to several words.
Says da-da and ma-ma.
Uncovers a toy seen hidden.
Builds a 2 block tower.
Has a pincer grasp.

*Do my parents need to seek help to evaluate my progress? Why or why not?

IV. The Role of Teacher

Ditto 125

Profile of a Child



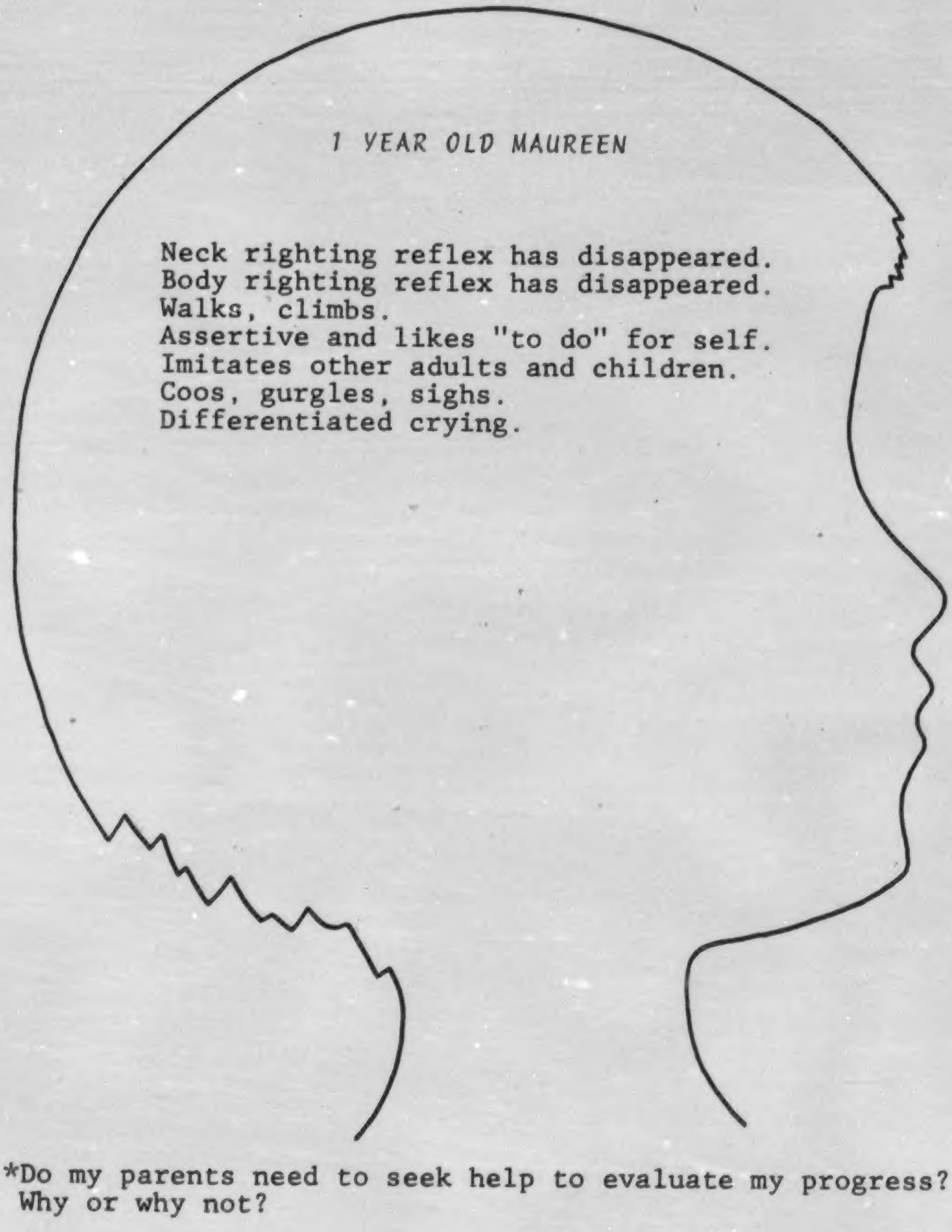
1 MONTH OLD ANDY

Lifts head briefly.
When pulled to a sitting position head lags.
If object is placed in his hand he drops it.
Tongue retrusion reflex has disappeared.
Smiles at people.
Quiets to a "face", voice or handling.
Stares at surroundings.
Coos, gurgles, grunts, sighs.

*Do my parents need to seek help to evaluate my progress? Why or why not?

Ditto 126

Profile of a Child



1 YEAR OLD MAUREEN

Neck righting reflex has disappeared.
Body righting reflex has disappeared.
Walks, climbs.
Assertive and likes "to do" for self.
Imitates other adults and children.
Coos, gurgles, sighs.
Differentiated crying.

*Do my parents need to seek help to evaluate my progress? Why or why not?

IV. The Role of Teacher

Ditto 127

Assistance for Parents With a Child Showing Developmental Lag

1. Early Periodic Screening, Diagnosis and Treatment (PSDT), a Federal assistance prevention program designed for those eligible for Medicaid. It is open to children up to 21 born to unemployed parents, the working poor and social security recipients. Under the Social Security Act (Title XIX) with regulations established in 1972 a parent can select a facility to meet their child's needs. The goal of EPSDT is to reduce and prevent physical and mental disabilities among children from birth to 21 years of age. Notification of the program is sent to all eligible families but only 60 to 70% respond. A case worker aids the family in finding a physician and screening the child within 60 days in relation to medical, nutritional, developmental, hearing and vision problems. The number to call for information is 614-466-4966.

2. Health Department.

3. Public School System.

4. Welfare Department.

5. Child Guidance Clinics.

6. Mental Health Clinics

7. Maternal and Child Health Clinics

8. Public or private schools for the handicapped.

9. Children and Family Services.

Ditto 128

Books Which Help The Parent In Their Role as Teacher

• Parents in their role as teacher should obtain and use good books on parenting to carry out the difficult job of educating the child from birth to 6 years of age.

The following books are highly recommended:

1. The First Three Years of Life
   By Burton White
   Avon Books

2. The First Twelve Months of Life
   By Frank Caplan
   Bantam Books

3. The Second Twelve Months of Life
   By Frank and Theresa Caplan
   Grosset and Dunlap

4. Total Baby Development
   By Jasolav Koch
   Wyden

5. Baby Learning Through Baby Play
   By Dr. Ira Gorden
   St. Martin's Press

6. Parent's Yellow Pages
   By Princeton Center for Infancy
   Anchor Books

7. Child's Body
   By The Diagram Group
   Paddington Press

8. Infant and Child in The Culture of Today
   By Gesell, Ilg, Ames and Rodell
   Harper and Row

9. The Child From Five to Ten
   By Gesell, Ilg and Others
   Harper and Row

10. Youth
    By Gesell, Ilg and Ames
    Harper and Row

IV. The Role of Teacher

Ditto 129

Books Which Help The Parent in Their Role as Teacher (Continued)

11. The Power of Play
    By Frank and Theresa Caplan
    Doubleday

12. The Mother's Almanac
    By Marguerite Kelly and Eliza Parsons
    Doubleday

13. Your Child's Sensory World
    By Lise Lipmann
    Dial

14. The Open Home
    By Catherine Munnion and Iris Grender
    St. Martin's Press

15. Loving and Learning
    By Norma J. McDiarmid and Others
    Harcourt, Brace, & Jovanovich

16. Coping With Children's Misbehavior
    A Parents Guide to Discipline
    By Rudolph Dreikurs'
    Hawthorn

17. The Magic Years
    By Selma Fraiberg
    Scribners

The Young Parent's Book Club
40 Guernsey Street
Stamford, Connecticut 06904

offers monthly selections of books for parents of any age of high quality.

The Parents as Resources is a team of two teachers and a social worker (all parents), dedicated to helping other parents work creatively and confidently with their children during the important pre-school/primary years. PAR has designed *concrete learning activities* and a *participatory workshop format* to encourage positive and enjoyable shared experiences between parents and children. The PAR team works to help parents in their

Ditto 130

Books Which Help The Parent in Their Role as Teacher

(Continued)

role as early educators through various approaches. These include:

1. A series of easy-to-use "Recipes For Fun" activity books.
2. A participatory workshop format used in training parents.
3. Leadership training offered both in the Chicago area and nationally to parents, teachers and others involved in parent training.
4. A new training package for community home-visitors.
5. Magazine articles, lectures and demonstrations.
6. A weekly syndicated newspaper column, "Recipes For Fun," now in comic strip form.
7. "Look At Me!" a television series for parents, produced by Chicago's educational station (WTTW) and funded by a grant from the National Institute of Mental Health to the PAR Leadership Training Foundation.

PAR Project
464 Central
Northfield, Illinois 60093
(312) 441-5617

IV. The Role of Teacher

Ditto 131

Action Checklist

In my role as teacher of the growing child I will:

____ Utilize an outline of the sequential development of the motor, social-emotional, language and mental aspects of my growing child to better understand my child.

____ Utilize an outline of the sequential development of the motor, social-emotional, language and mental aspects of a growing child to guide me in providing experiences that stimulate and help my child move through the sequences of mental growth.

____ Utilize an outline of the sequential development of the motor, social-emotional, language and mental aspects of a growing child to determine any serious developmental lags in my child so that I can obtain help in providing the appropriate experiences for my child.

____ Obtain and use a few good books on parenting to help me prepare an environment for my child that will stimulate the neurons of my child's central nervous system with a variety of good experiences that encourage the child's attainment of developmental milestones.

IV. The Role of Teacher

Ditto 132

Action Checklist
(Continued)

____ Attend "parenting" classes offered by community agencies, colleges or schools to improve my skills in carrying out my role as a teacher and parent.

____ Find a quality infant or child care program for my child to help me in the home, outside of the home, or both in the first few weeks of my child's life until school age if I cannot provide adequate stimulation and nurturance for my child on my own.

____ Ask that an EXCEL program be started in my child's school if I am from a minority race.

○○○ Bibliography

Ainsworth, Mary. "The Effects of Maternal Deprivation: A review of Findings & Controversy in The Context of Research Strategy," from *Deprivation of Maternal Care*, Geneva: World Health Organization, 1962.

American Red Cross. *Parenting*, 1978.

Anastasiow, Nicholas J. *Facilitative Environments Encouraging Development*, Institute for Child Study, Indiana University, Bloomington, Ind.

Apgar, Virginia. *Is My Baby All Right*? New York: Pocket Books 1972.

Birch, Herbert and Joan Gussow. *Disadvantaged Children; Health, Nutrition and School Failure*, New York: Grune and Stratton, 1970.

Brazelton, T. Berry. "Complaints With an Emotional Element." *Child Health Encyclopedia*, Boston Children's Medical Center, New York: Dell Publishing, 1975.

Brazelton, T.B. "Effect of Maternal Expectations on Early Infant Behavior, Early Child Development." *Care* 2, 1973.

Bricker, D. D. & W. A. Bricker. "Toddler Research and Intervention Project: Report-Year I." *IMRID Monograph #20*, 1971.

Bricker, D. D., & W. A. Bricker. "Toddler Research and Intervention Project: Report-Year II." *IMRD Monograph #21*, 1972.

Bricker, D. D., & W. A. Bricker. "Toddler Research and Intervention Project: Report-Year III." *IMRID Monograph #23*, 1973.

Bryan, Tanis and James. *Understanding Learning Disabilities*, Port Washington, N.Y.: Alfred Publishing Co., 1975.

Caldwell, Bettye M. "The Effects of Early Experience on a Child's Development." *The Mental Health of The Child*, Julius Segal (Ed.), Washington: Superintendent of Documents, 1975.

Caplan, Frank (Ed.). *The Parenting Advisor*, New York: Doubleday, 1977.

Caplan, Frank (Ed.). *Parent's Yellow Pages*, New York: Doubleday, 1978.

Caplan, Frank (Ed.). *The First Twelve Months of Life*, New York: Bantam, 1978.

Caplan, Frank and Theresa. *The Second Twelve Months of Life*, New York: Grosset & Dunlap, 1977.

Carter, Charles H. *Handbook of Mental Retardation Syndromes*, Springfield, Ill.: Charles C. Thomas, 1975.

De Charms, R. "Personal Causation Training in Schools." *Journal of Applied Social Psychology*, 2:95, 1972.

Diagram Group. *Child's Body*, New York: Paddington Press, 1977.

Etheridge, George and Linda Strausbaugh. *Early Childhood Intervention Methods of Preventing Mental Retardation and Developmental Disabilities*, Presentation at Ohio Prevention Conference, 1978.

Finnie, Nancie R. *Handling The Young Cerebral Palsied Child at Home*, New York: E.P. Dutton, 1975.

Folio, R. and R. DuBose. "Peabody Developmental Motor Scales (Revised)." *IMRID Monograph #25*, 1974.

Forrester, Bettye J., Geraldine P. Brooks, Beulah Hardge, and Doris M. Outlaw. *Materials for Infant Development*, Nashville: Demonstration and Research Center for Early Education, George Peabody College, 1971.

Foster, Martha, Jan Scanlan, Della Horton, Ann H. Young, Joanne C. Rosenblatt, and Mary Ann Downey. *Promoting Infant Development: A Guide for Working With Parents*, Nashville: Demonstration and Research Center for Early Education, George Peabody College, 1974.

Fraiberg, Selma H. *The Magic Years*, New York: Charles Scribner, 1959.

Furfey, Paul. "Reducing the Effects of Cultural Deprivation." *The Mental Health of The Child*, Julius Segal (Ed.) Washington: Superintendent of Documents, 1975.

Garrand, Sterling and Julius Richmon. "Mental Retardation Without Biomedical Manifestations." *Medical Aspects of Mental Retardation*, Charles Carter (Ed.), Springfield, Ill: Charles C. Thomas, 1978.

Gesell, Arnold and Catherine Amatruda. Developmental Diagnosis - Normal and Abnormal Child Development, New York: Harper and Row, 1947.

Gesell, Arnold and Catherine Amatruda. Developmental Diagnosis - Normal and Abnormal Child Development, New York: Paul B. Hoeber, 1960.

Gesell, Arnold et al. The First Five Years of Life, New York: Harper, 1940.

Gesell, Arnold and Francis L. Ilg. The Child From Five to Ten, New York: Harper, 1946.

Gomez, Antonio and Blanche Podhajski. "Language and Mental Retardation." Medical Aspects of Mental Retardation. Charles Carter (Ed.), Springfield, Ill: Charles C. Thomas, 1978.

Gutelius, Margaret. "Infant Stimulation as Part of Well Baby Care in a Disadvantaged Areas." The Mental Health of the Child. Julius Segal (Ed.), Washington: Superintendent of Documents, 1975.

Hardge, Beulah and Carolyn M. Kosser. Mother's Guides. (Seventeen leaflets to help mothers help children.) Nashville: Demonstration and Research Center for Early Education, George Peabody College, 1975.

Heber, Rick F. Sociocultural Mental Retardation - A Longitudinal Study, a paper presented at the Vermont Conference on The Primary Prevention of Psychopathology, 1976.

Hellmoth, J. (Ed.). Disadvantaged Child: Head Start and Early Intervention. New York: Brunner, Mazel Inc., Vol. 7, 1969.

Hunt, McVicker. Intelligence and Experience, New York: Ronald Press Company, 1961.

Hunt, McVicker and Ina Uzgiris Films. Ordinal Scales of Infant Development.

Klaus, Marshall H. and John H. Kennell. Maternal-Infant Bonding: The Impact of Early Separation or Loss on Family Development, St. Louis: C.V. Mosby Co., 1976.

Klaus, Marshall H. "Mothers Separated from Their Newborn Infants." Pediatrics Clin. N. Amer., 17:1015, Nov., 1970.

Koch, J. Baby Development, New York: Wyden, 1976.

Koch, Jaroslav. Total Baby Development, New York: Simon and Schuster, 1976.

Krause, Fred. New Roles, New Hope for The Mentally Retarded, U.S. News and World Report, August 28, 1978.

Lambert, Nadine and Others. AAMD Adaptive Behavior Scale, Public School Version, Washington: American Association on Mental Deficiency, 1975.

Levy, Janine. The Baby Exercise Book: The First Fifteen Months. Translated by Eira Gleasure, New York: Pantheon Books, 1976.

Lipemann, Lise. Your Child's Sensory World, New York: Dial, 1973.

Malson, Lucien. Wolf Children and The Problem of Human Nature, New York: Monthly Review Press, 1972.

Manocha, Sohan L. "Environmental Influences in Human Development." Malnutrition and Retarded Human Development, Springfield, Ill.: Charles C. Thomas, 1972.

Meir, John H. "Early Intervention in The Prevention of Mental Retardation," in The Prevention of Genetic Disease and Mental Retardation, Aubrey Milunsky (Ed.), Philadelphia: Saunders, 1975.

Meier, John. The Infant and Young Child. Presentation The Governor's Conference on Prevention of Developmental Disabilities, Newport Beach, California, Dec., 1973.

Montegu, Ashley. Touching, New York: Columbia University Press, 1971.

Montessori, Maria. The Absorbent Mind, New York: Holt, Rinehart and Winston, 1967

National Institute of Child Health and Human Development. Early Diagnosis and Intervention, Unpublished Paper, 1978.

National Institute of Child Health and Human Development. Social Disadvantage and Mental Retardation, Unpublished Paper, 1978.

Nilsson, Lennart. Behold Man. Boston: Little, Brown and Company, 1973.

Partners in Language: A Guide for Parents. American Speech and Hearing Association, Bethesda, Maryland.

Piaget, Jean. The Child's Conception of the World. Totowa, N.J.: Littlefield, Adams & Co., 1975.

Piaget, J. The Origins of Intelligence in Children. New York: International Universities Press, 1952.

Reiss, Ira. Readings on the Family Systems. New York: Holt, Rinehart & Winston, 1972.

Robinson, Nancy and Halbert Robinson. The Mentally Retarded Child, New York: McGraw-Hill, 1976.

Robinson, K. S. and H. A. Moss. "Patterns and Determinants of Maternal Attachment." J. Pediatrics, 77:967, December, 1970.

Rose, Steven. "Specificity Versus Plasticity." In The Conscious Brain, New York: Alfred A. Knopf, 1973.

Rose, Steven. "The Child's Brain, and The Adults." In The Conscious Brain, New York: Alfred A. Knopf, 1973.

Rosenheim, Harold. "Social Deprivation and Mental Retardation." Child Psychiatry and Human Development, Vol. 4(4), Summer, 1974.

Scott, Loyce Cannon. Prevention By Early and Periodic Screening, Diagnosis and Treatment, Presentation at Ohio Prevention Conference, 1978.

Shineour, Elie. "The Measurement of Intelligence." The Malnourished Mind, New York: Doubleday, 1974.

Smith, Robert. Clinical Teaching: Methods of Instruction for The Retarded, New York: McGraw-Hill, 1968.

Stephens, Beth (Ed.). Training The Developmentally Young, New York: The John Day Co., 1971.

Teach Your Baby to Talk, CEBCO, Standard Publishing Co., New York, N.Y.

Tenbrinck, Margaret S. "Early Prediction of Mental Retardation Using the Developmental Milestones of Sitting, Standing, and Walking." Journal of American Medical Women's Association, 29 (2), Feb., 1974.

Wechsler, David. Manual for The Wechsler Intelligence Scale for Children, New York: The Psychological Corporation, 1974.

White, Burton. The First Three Years of Life, Englewood Cliffs, N.J.: Prentice-Hall, 1975.

Wolff, Peter. "Heredity or Environment." Pregnancy, Birth and The Newborn, Boston Children's Medical Center, New York: Delcourte Press, 1972.

Ziler, E. F. "National Priority: Raising the Quality of Children's Lives." Children, 17:166, Sept.-Oct., 1970.

THE MOTHER
AND FATHER
OF THE
GROWING
CHILD
IN THEIR
ROLE AS

PSYCHOLOGIST

V. The Mother and Father of The Growing Child In Their Role as Psychologist

Their Responsibility in The Prevention of Mental Retardation In The Next Generation

Objectives

GENERAL

a. *The student will know that an unidentified sensory impairment or a learning disability could limit their child's intellectual capacity.*
b. *The student will know why early identification of a sensory or learning disability is important.*
c. *The student will know that a number of conditions put a child at risk for a hearing, vision, or learning disability during the prenatal period.*
d. *The student will know that a number of conditions put a child at risk for a hearing, vision, or learning disability during labor and delivery.*
e. *The student will know that a number of conditions put a child at risk for a hearing, vision, or learning disability during the growing years.*
f. *The student will know the importance of being aware of normal growth and development.*
g. *The student will know that a deviation in normal growth and development could be a signal of a hearing, vision, or learning disability.*
h. *The student will be aware of the basic functions and structures of the eye.*
i. *The student will be aware of the basic functions and structures of the ear.*
j. *The student will be aware that damage to or malformation of the eye structures results in impaired vision.*
k. *The student will be aware that a damage to or malformation of the ear structures results in impaired hearing.*
l. *The student will be aware of the types of hearing impairments.*
m. *The student will be aware of the types of visual impairments most common in the growing years.*
n. *The student will be aware of the type of central nervous damage that causes learning disabilities.*

SPECIFIC

Cognitive

1. The student will be able to name three (3) disabilities, if unidentified, that could limit their child's intellectual capacity.
2. The student will be able to state the importance of early identification of a sensory or learning disability.
3. The student will be able to name two (2) factors important for early identification.
4. The student will be able to list ten (10) prenatal risks that could cause a vision, hearing, or learning disability.
5. The student will be able to list ten (10) risks of labor and delivery that could cause a vision, hearing, or learning disability.
6. The student will be able to list ten (10) risks of the growing years that could result in a vision, hearing, or learning disability.
7. The student will be able to list eight (8) "developmental signals" of a vision impairment.
8. The student will be able to list eight (8) "developmental signals" of a hearing impairment.
9. The student will be able to list ten (10) "developmental signals" of a learning disability.
10. The student will be able to name and identify the cornea, iris, lens, vitreous humor, retina, and optic nerve of the eye.
11. The student will be able to name the sensory receptor area of the eye.
12. The student will be able to explain the basic steps of how we see.
13. The student will be able to name seven (7) types of vision impairments that could occur during childhood.
14. The student will be able to name and identify the outer, middle, and inner ear.
15. The student will be able to name the sensory receptor of the ear.
16. The student will be able to explain the basic steps of how we hear.
17. The student will be able to state what type of impairment results in a learning disability.
18. The student will be able to list the four (4) types of processing impairments of a learning disability.
19. The student will be able to list eight (8) possible learning problems a learning disabled child might have.

Affective

1. The student will feel that from conception on a child may incur risks that could affect the hearing, vision, and learning processes.
2. The student will feel it is important to identify the high risks of a hearing, vision, or learning disability.
3. The student will feel early identification of a sensory or learning disability is important for optimum development of a child's intellectual capacity.
4. The student will feel, as a parent, it is important to have an awareness of normal growth and development.

5. The student will feel that a deviation in normal growth and development could be a signal of a hearing, vision, or learning disability.
6. The student will feel that a child with a high risk history should be observed closely for deviations in development.
7. The student will feel that, as a parent, it is important to discuss any deviations in development with the child's physician.
8. The student will feel regular physical checkups are important for early detection of vision, hearing, or learning disabilities.
9. The student will feel that it is important that an infant at risk of a hearing loss have regular screening tests for the first 2 years.
10. The student will feel that is is important for an infant at risk of a hearing loss, have a diagnostic hearing test if: the infant shows any abnormal hearing behaviors; the infant fails two (2) screening tests; the parent has any reservations about his/her infant's ability to hear.
11. The student will feel that it is important for a preschooler to have his/her eyes tested by age 3½.
12. The student will feel that a food allergy could contribute to the problems of a learning disabled child.
13. The student will feel that medication can be of benefit to some hyperactive learning disabled children.

Background Information for the Teacher

In the role as a psychologist, the parent functions as an assessor of their child's learning abilities. Each child learns at its own pace; has its own set of emotional repertoires; learns to walk, crawl, and talk in its own manner. These traits are expressions of the uniqueness and individuality of a child. The child's nervous system has advocated these individual differences. Even though these characteristics are unique to each child they develop in all children at specific times or stages of a child's life. Great deviations from what is considered normal development may indicate mental retardation or a sensory or learning deficit that if left undetected and untreated could develop into retardation.

Being aware of normal development is a key factor of prevention, correction, and intervention. It is important to determine as early as possible any mental, emotional, social, sensory, or learning behavior that is grossly different from the norm. Early detection permits corrective and preventive action to begin at an age when it is most effective.

A sensory deficit or damage to the neuron pathways does not allow information to stimulate the development of synapsis and the chemical changes needed to develop the extensive network of cell-to-cell connections. If these pathways are not made, the child's innate intellectual potential is limited.

Sensory deficits, learning problems, and/or mental deficiency needs to be identified early so that appropriate stimulation fit to the child's unique nervous system can take place. The lack of stimulation can result in behavior and a learning set that mimics retardation (pseudoretardation) or causes further retardation. Pseudoretardation can result in true mental retardation if left unidentified, untreated, and unmanaged. This is a needless loss of innate potential.

Early detection is the key to prevention of pseudoretardation and lessening the effects of true retardation. Early detection relies on: identifying high risk children; recognition of behaviors symptomatic of a sensory deficit, learning disability, or a behavior problem; seeking appropriate professional services; and developing an understanding of the nature of the handicap.

HEARING !!!

Incidence

... 14 million Americans have hearing impairments.

... 1 out of every 10 Americans have some degree of hearing loss.

... 1 child in 1,500 is born deaf and many acquire it after birth.

... 3 children in 100 have impaired hearing.

... 12 out of every 10,000 children are totally deaf.

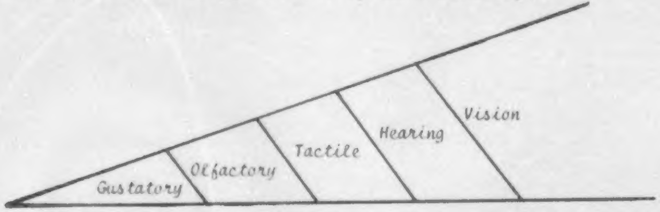
... 150-300 children out of 10,000 youngsters have a serious hearing loss.

... over 2 million school-age children have a hearing loss that could harm learning.

... 3-4% of this 2 million will need intensive special education.

ANY HEARING IMPAIRED CHILD RUNS THE RISK OF BEING MISDIAGNOSED AS A SLOW LEARNER OR MENTALLY RETARDED.

Whether the hearing loss is severe or mild it has the potential of being mistaken as an impairment of mental functions. Our senses are used to explore and understand the environment. They are set up in a hiearchy:



If one sense is deficient the hiearchy is rearranged, leaving us with an altered perception of the world. Hearing is a distant nonlinear sense. It can not be turned off as a normal, voluntary action and consequently serves us as a warning and inviting sense. Without it our interest in our environment, clarity of actions around us and our feelings of safety and danger are altered. When a child is hearing impaired, these altered perceptions may give faulty or incomplete knowledge of the world around him, thus causing problems in formulating language concepts, that are bases of abstract thought and academic achievement.

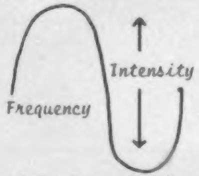
Not only are language and abstract thought processes inhibited but also socialization and communication. Audition serves as a tool for the normally developing infant to form a verbal symbol system that assimilates the patterns of speech and language communication of the community. It is through communication that a child becomes socialized, accumulates knowledge and develops intrapersonal relationships. If this puzzle piece is gone the child may have impaired

speech
language
learning ability
and
social growth.

The child could be labeled as mentally retarded.

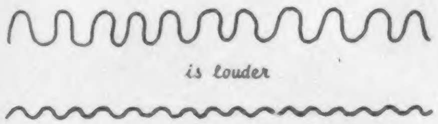
SOUNDS WE HEAR

The ear is the sense organ for recieving sounds. It changes the mechanical sound waves into electrical impulses the brain can understand. Sound is caused by displacement of molecules, much like the waves or ripples that are caused by throwing a rock or pebble into a pool of water. These waves have two characteristics: the height which yield the pressure or intensity of sound; and the number or frequency of wave cycles in a given time.

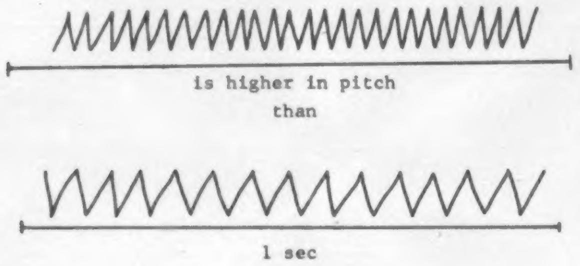


The intensity of a sound gives it the characteristic of loudness that we use to differentiate the closeness or distance of a sound. The closer the sound is to us the less distance the wave travels and the more potential pressure it has to register on our ear - causing the sound to be louder in characteristic. If the sound is created at a distance, the height (or intensity) of the wave dissipates while traveling. Therefore, the pressure will be less intense, creating a softer sound. The intensity or pressure of the sound is expressed in decibels - db - a logarithmetic unit. The greater the number of db's the louder the sound.

The normal reception of the loudness of sound is considered to be from 0 db to 15 db.



The characteristic of a sound that we refer to as pitch, is caused by the frequency or number of cycles of a wave in one second. The closer the waves are together (conversely the shorter each wave length) the more frequently the waves strike the eardrum in one second. The more frequently the wave or cycles per second the higher the pitch. Man can generally hear frequencies between 20 cycles/sec (low pitch) and 20,000 cycles/sec (high pitch). The frequencies most important to speech are 500, 1000 and 2000. These frequencies are termed the speech range. This means that the majority of speech sounds have characteristic cycles/second falling at 500, 1000 or 2000 or somewhere in between. These frequencies are the most important for understanding speech.



"TESTING HEARING"

When hearing is measured both of these characteristics are taken into account. A machine called an audiometer is used to test hearing sensitivity at different frequencies. An audiologist, a "paramedical specialist" with training in the chemical/physical diagnostics of audition, utilizes the audiometer for a diagnostic evaluation of hearing. The audiometer is also utilized for screening purposes by an audiometrist, who is generally a speech and language clinician with specialization in audiology. Screening is done with the general population to single out those children/individuals that are at high risk for a hearing impairment. The audiologist does the diagnostic testing to determine if there is a loss and the extent and type of loss.

Diagnostic testing is generally done on the referral of a M.D., Otologist (M.D. specializing in treatment of the ear), or Otolaryngologist (M.D. specializing in care of ear, nose and throat). The M.D. receives a referral from an audiometrist and assesses the need of immediate medical treatment before further testing is done. In some cases this may be all that is needed. In other cases further diagnostic procedures are needed for the M.D. or M.D. specialist to diagnose and/or prescribe treatments.

Through the audiometric diagnostic testing the degree of loss is determined. A test tone at each of the following frequencies is given: 300, 500, 1000, 2000, 4000, and 8000. The test tones are presented one at a time for each ear. Therefore assessing if it is a monaural or binaural hearing impairment. Each tone is presented until the lowest decibel level for hearing that frequency is determined. The decibel levels for each of the speech frequencies are averaged. Each ear has an average and this is called the pure tone average. This average indicates the degree or severity of the loss for each ear.

Figure 67. Types of Hearing Impairments.

	Degree of Loss	Implications
25-40 db	Mild	Difficulty with faint or distant speech.
40-55 db	Moderate	Difficulty with conversations at a 3 to 4 ft. distance.
55-70 db	Moderately Severe	Difficulty with group and classroom discussions.
70-90 db	Severe	May hear loud noises 1 ft. from ear.
90 db +	Profound	Can hear some loud noises.

During the diagnostic evaluation 2 types of approaches to conducting sound are utilized. The first is done through earphones or air conduction. The sounds follow the normal route of sound through the air and middle and inner ear. The second is done by bone conduction. This is done with a small square device placed on the forehead or behind the ear. It allows the sound to be conducted by the temporal bone into the inner ear, the sense organ of hearing. It by-passes the middle ear which is anatomically structured to conduct sound waves to the sense organ in the inner ear. These are diagnostic procedures to determine the location of damage in the ear.

THE EAR AND IT'S FUNCTION

The ear and auditory cortex is divided anatomically into three parts. The outer ear, middle ear, inner ear, and auditory nerve tracts. Each of these has its own specific anatomy and physiology. They work interdependently to change the sound waves into electrical impulses that the brain can understand. Each one is important to hearing. If damage or malformation occurs in any one of these areas a hearing impairment results. Let's look at the anatomy of the ear and the auditory cortex, and how each section functions to conduct sound waves into electrical impulses so that we can "hear".

Landmarks of:

Outer Ear

The pinna
The ear canal

Ear Canal contains wax that
a. prevents small items from lodging there.
b. lubricates the canal.

Middle Ear

... It is located in the temporal bone and is about the size of an aspirin.

... It contains the eardrum which is made of fibrous tissue. It is held tense over the opening between the outer & middle ear.

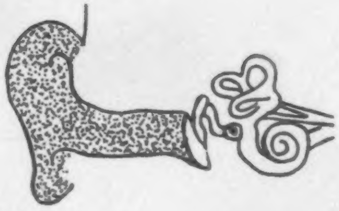
... It also contains the smallest bones in the body. The malleous, the incus and the stapes. The stapes rests in an opening (the oval window) between the middle and inner ear.

... These 3 small bones (collectively known as the ossicles) make a connecting link from the outer to inner ear.

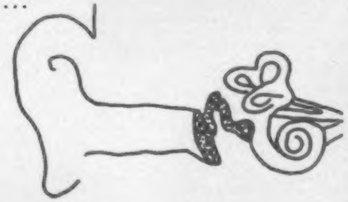
... The eustachian tube opens into the bottom of the middle ear. It allows the fluids that accumulate here to drain into the pharynx (throat). It also equalizes the air pressure in this small cavity. Since it is a direct passage to the nose it allows nasal bacteria or virus access to the middle ear.

...

How We Hear



1. Source of sound sends out vibrations.
2. Pinna channels sound to ear canal.
3. Ear canal acts as a resonator so vibrations have higher intensity at eardrum.



1. Eardrum is displaced by sound.
2. The inward pressure of drum causes first the malleous - then the incus and - then the stapes to move.
3. The stapes rocks in the oval window.

Inner Ear

... It is about the size of a pea.

... It is composed of an outer bony wall which contains fluid and an inner membranous portion.

... An opening called the oval window lies in its outer wall. The stapes (last of the 3 bones in middle ear) rests in this opening.

... The inner ear has 2 sections the semicircular canals-shaped as such-and the cochlea a long cylinder rolled up like a snail.

... The membranous semicircular canals contain sense cells for balance and equilibrium.

... The membranous part of the cochlea contain the Organ of Corti the sense cells for hearing.

1. The movement in oval window causes the fluid in the bony cochlea cavity to be displaced.
2. The movement of the fluid causes the membranous cochlea to vibrate.
3. This movement excites the sense cells in the organ of corti.
4. The sense cells convert the mechanical motion into electrical impulses.
5. The dendrites are stimulated with electrical impulse.

The Auditory Tract and Cortex

... 28,000 cell bodies of receptor neurons lie in the spiral ganglion. The spiral ganglion and connecting nerve fibers lie in a network of tunnels or burrows in the bony core of the cochlea.

... Dendrites from neurons go to organ of corti.

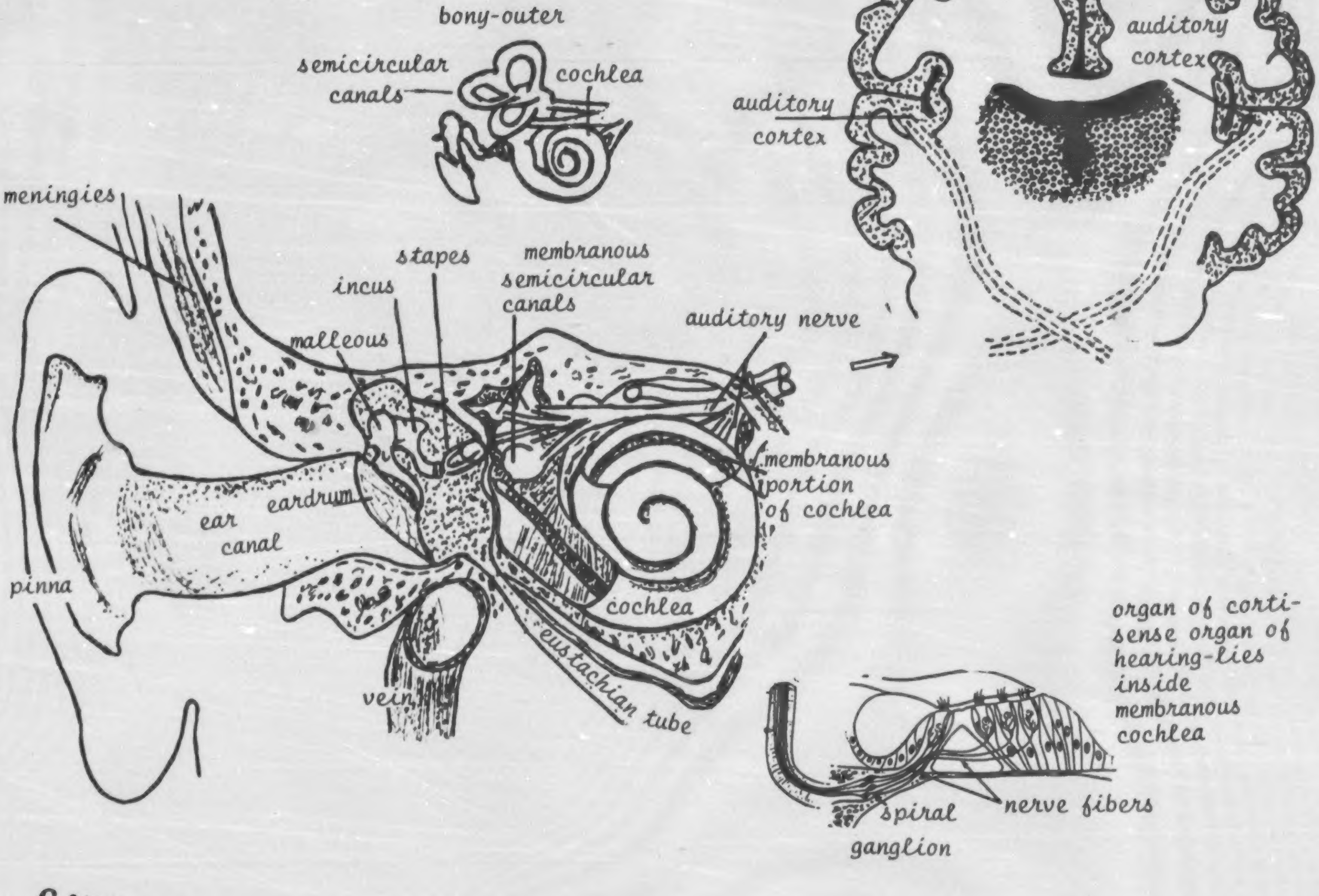
... Axons go away from neuron and form auditory nerve.

... Auditory nerve travels to base of brain to connecting neurons.

... Nerve tracts go from base of brain back up to the cortex and the auditory receptor area.

1. The impulse then follows the auditory nerve and its tracts to mid brain and then up auditory tracts to auditory area of the cortex.
2. Auditory cortex-the ultimate perception of the "heard" event take[illegible]lace.

"THE
EAR"

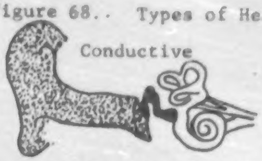

bony-outer
semicircular canals
cochlea
auditory cortex
auditory cortex
meningies
stapes
incus
membranous semicircular canals
auditory nerve
malleous
membranous portion of cochlea
eardrum
ear canal
pinna
cochlea
eustachian tube
vein
organ of corti-sense organ of hearing-lies inside membranous cochlea
spiral ganglion
nerve fibers

647

648

Damage or malformation can occur at any one of these sights. Since each area has a specific function in the hearing process, malfunction or damage in any one area has predictable results in relation to frequency and intensity. Therefore, hearing impairment is not only classified according to degree of loss (see figure 68) but also according to the type of loss: conductive, sensory-neural mixed or central.

Figure 68.. Types of Hearing Impairment by Location


Conductive

...Damage or malformation to outer or middle ear.

...Damage caused by poor conduction of sound to the sense organ by restricting movement of the eardrum or ossicles or plugging the ear canal.

...Generally mild or moderate impairment.

...If purely conductive total loss cannot be worse than 70 db. (After this level the bones of head conduct sound waves to sense organ. Sound is heard if the cochlea is intact.)

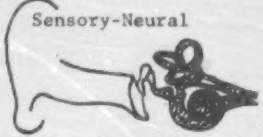
...Really loud speech can be heard.

...Hearing aid is generally successful for remediation.

...In audiometric testing general sounds conducted by bone will be heard better than those by air conduction.

...Is not much of a handicap in noisy places because child does not hear, or only faintly hears, noise that disturbs us to talk louder. This loud speech overrides a moderate conductive loss.

...Medical or surgical treatment may be helpful.


Sensory-Neural

...Malformation or damage to inner ear or nerve fibers.

...Sounds are distorted or heard incorrectly.

...Caused by damage to or death of sense cells or receptor neuron cells.

...Frequency discrimination problems.

...Hears some frequencies but not others (as some sense cells are destroyed and others are not).

...High frequencies affected sometimes more than low.

...Abnormal rapid growth of the sensation of loudness as intensity of sound is increased.

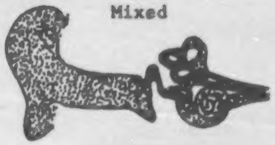
...Ringing of the ears.

...Speech discrimination problems.

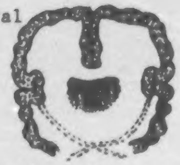
...Air conduction and bone conduction responses approximate each other.

...Hearing aid generally ineffective. Distortion it causes is too annoying to individual wearing aid.

...Medical and surgical possibilities nil - the destruction of sense cells and neuron fibers is permanent and irreversible.


Mixed

...Combination of conductive and sensory-neural hearing loss.


Central

...Damage to or failure of function in the central nervous system.

...Auditory cortex fails to receive signal correctly.

...Caused by destruction or damage to neurons in the cerebral cortex and/or auditory nerve and pathways.

...Person may hear sound but not understand what he has heard.

...May give different results on different trials with an audiometer.

...Is unable to understand speech - or in a very limited way.

...Could be termed a learning disability.

WHAT CAUSES A HEARING IMPAIRMENT ?

Age of onset can be anywhere from time of conception on. The hearing mechanism is a delicate organism and is vulnerable to injury or infection from a variety of insults. The leading etiologies of hearing loss are also major causes of retardation. Prenatal rubella, complications of Rh factor, meningitis, and premature birth accounts for one third of all deafness in children. Other causes of hearing loss are listed in figure 69, Annual Survey of Hearing-Impaired Children and Youth, Office of Demographic Studies, Gallaudet College, Washington, D.C., March 1973.

Heredity plays a large role in deafness and hearing impairments, 1/2 of childhood deafness is caused by a defective gene. There are 45 genetic syndromes associated with hearing loss. The genetic cause can be: autosomal recessive; dominant; or sex linked. Sometimes the syndromes involve disease or mental retardation as well as hearing loss. Figure 70, lists some genetic syndromes resulting in hearing loss.

Figure 69. Annual Survey of Hearing-Impaired Children and Youth, Office of Demographic Studies.

Cause	
Prenatal	
Maternal Rubella	6,077
Trauma to Mother	253
Medication During Pregnancy	271
Complications of Pregnancy	994
Hereditary	3,073
Other Causes	844
Labor and Birth	
Trauma at Birth	916
Rh Incompatibility	1,402
Other Causes	844
Prematurity	2,207
During Childhood	
Meningitis	2,017
Mumps	351
Measles	1,114
Otitis Media	927
Trauma	420
Fever	628
Other Causes	2,000

Figure 70. Genetic Syndromes That May Result In A Hearing Loss.

Pendred
Diabetes
Albinism
Waardenburgs
*Treacher Collins
Klippel-Feil
*Hurlers Syndrome
Uscher's
*Cockayne
Alports
*Hyberbilirubinemias
Scheibes
*Oto-palato-digital
Hunters Syndrome
Marfans Syndrome

*Are associated with high incidence of mental retardation.

Prevention of hearing impairment and possible psuedo retardation lies in identifying infants and children that are at a high risk for hearing impairment. Researches are now urging doctors and hospitals to form high risk registers allowing babies at high risk to be followed closely. The high risk register could probably identify three out of four severe hearing losses.

THE RISKS

NEWBORN AND INFANT

Prenatal

1. History of deafness or hearing impairment in family.
2. Familial biochemical abnormality associated with deafness-diabetes-hypothyroidism.
3. Blood incompatability-Rh Factor or ABO Group.
4. Maternal virus infection-as rubella, measles, influenza, mumps.
5. Maternal toxemia.
6. Bleeding during 1st trimester.
7. Maternal use of drugs-especially mycin group or quinine.

... *ANY OF THESE CONDITIONS COULD BE SYMPTOMATIC OR A CAUSE OF INTERFERENCE IN NORMAL DEVELOPMENT OF THE FETUS, THUS CAUSING MALFORMATIONS OF OUTER, MIDDLE OR INNER EAR. INSULT COULD OCCUR AFTER HEARING MECHANISM IS FORMED CAUSING AN INHIBITION OF NORMAL GROWTH OF SENSE CELLS AND NEURONS.*

Labor and Delivery Complications

8. Premature birth.
9. Fetal distress due to maternal shock.
10. A precipitous labor.
11. A prolonged labor.
12. Induced labor.
13. Maternal use of drugs.
14. Delayed birth.
15. Any difficult delivery causing traction of neck or birth injury such as abnormal birth position of infant, or disproportion of the size of the unborn child.
16. Forcep delivery.
17. Premature separation of placenta from the uterus.
18. Obstruction of birth canal by the placenta, cord, or a growth.

... *UNDUE TRAUMA OCCURRING TO THE IMMATURE HEARING MECHANISM RESULTS IN DAMAGE OF INNER EAR OR CENTRAL AUDITORY PATHWAYS.*

... *DAMAGE TO THE SENSE CELLS OR NEURONS IN CORTEX OR INNER EAR BECAUSE OF LACK OF OXYGEN OR CEREBRAL HEMORRHAGE.*

Newborn

19. Jaundice - hyperbilirubinemia (15 mg. per cct above).

... *BILIRUBIN COLLECTS IN CEREBRAL CORTEX AND AUDITORY PATHWAYS DESTROYING NEURONS OR SENSE CELLS NEEDED FOR HEARING.*

20. Possible trauma from the noise of an incubator and/or drugs notably streptomycin or kanamycin.

... *OTOTOXIC DRUGS HAVE POTENTIAL OF DESTROYING SENSE CELLS OF INNER EAR.*

... *NOISE IN HOSPITALS AND INCUBATORS IS BETWEEN 50-86 DB ON A CONTINUOUS BASIS. THIS FALLS BELOW LEVELS CONSIDERED AS POTENTIAL FOR A NOISE INDUCED LOSS, BUT A NOISE INDUCED LOSS IS BASED ON AN INTERMITTENT EXPOSURE NOT CONTINUOUS. SINCE INFANTS MAY BE MORE SUSCEPTIBLE THAN ADULTS, HOSPITAL NOISE AND INCUBATOR NOISE COULD BE POTENTIAL HIGH RISK FACTORS OF HEARING LOSS.*

... *INFANTS IN INCUBATORS ARE AT A DOUBLE RISK. THEY OFTEN INCUR INFECTIONS AND NEED MEDICATIONS OF AN OTOTOXIC NATURE. AT THE SAME TIME THEY MUST BE IN AN INCUBATOR. IN ANIMAL STUDIES THE COMBINATION OF THE TWO FACTORS HAD A LARGE POTENTIAL OF COCHLEA DAMAGE.*

21. Congenital malformation of external ear, cleft lip or palate.

... *THESE ABNORMALITIES CARRY A HIGH RISK OF ACCOMPANYING MALFORMATION OF MIDDLE AND INNER EAR STRUCTURES.*

PREVENTION

Prevention ⇨ Early Detection

Any of these factors raises the question of a hearing impairment. An infant at risk, having any one of the above factors, should be:

1. followed closely in relation to development of any abnormal auditory behavior patterns, see chart below.
2. evaluated at regular intervals for the first 2 years. (An infant's hearing is difficult to evaluate and a loss may not show itself at birth but at a later age. This is particularly true in hereditary impairments.)
3. given a diagnostic evaluation if abnormal auditory behavior is suspected and/or the child responds unsatisfactorily in 2 screening tests.

"DEVELOPMENTAL SIGNALS"

0 TO 3 MONTHS

... Newborn is not startled in response to a sharp clap within 3 feet.

... Newborn is not soothed by mother's voice.

... Inconsistent response in newborn to sound - responds to loud sound but not to soft sound or high sound versus low sound.

3 TO 6 MONTHS

... Baby does not search for source of sound with eyes.

... Baby does not respond to cooing and babbling of parents.

... Baby does not imitate his own noises (oohs, ba-bas etc.).

... Baby does not enjoy sound-making toys.

... Inconsistent response in baby to sound - responds to loud sound but not to soft sound or high sounds as opposed to low sounds.

6 TO 10 MONTHS

... Baby does not respond to name, telephone ringing, or to someone's voice.

... Baby does not understand phrases as no-no or bye-bye.

10 TO 15 MONTHS

... Child cannot point to or look at familiar objects or people.

... Child does not imitate simple sounds and words.

... Child does not respond to no-no or name unless he/she sees the speaker.

... Child does not hear someone at door.

... Child shows no interest in radio or television.

15 TO 18 MONTHS

... Child does not follow simple directions.

... First words of a child such as bye-bye, no-no, go-go, etc., are not developing.

18 MONTHS TO 3½ YEARS

... No noticeable increase in toddler's vocabulary.

... Child uses gestures almost exclusively to establish needs and desires as opposed to verbalizing.

... Child watches parent's face intently when speaking.

... Toddler doesn't enjoy being read to.

... Child has history of earaches or ear infections.

... Child appears disobedient.

EARLY CHILDHOOD RISK FACTORS

1. Infections such as meningitis, encephalitis, measles, mumps or other bacterial or viral infections.

... *INFECTION CAN INVADE THE INNER EAR BY WAY OF BLOOD STREAM OR THROUGH THE CEREBROSPINAL FLUID. THE PERILYMPH OF THE BONY CAVITY OF THE INNER EAR IS CONNECTED TO THE CEREBROSPINAL FLUID VIA THE PERILYMPHATIC DUCT. CONSEQUENTLY INFECTIONS THAT ARE VIRULENT IN THE CEREBROSPINAL FLUID OR MENINGES HAVE POTENTIAL OF SPREADING TO THE INNER EAR. REGARDLESS OF THE MODE OF ACCESS, INFECTIONS CAN DAMAGE THE ORGAN OF CORTI CONTAINING THE SENSE CELLS AND FIBERS FROM NEURONS OR THE AUDITORY PATHWAYS IN THE CORTEX.*

2. Chronic respiratory infection and/or allergy.

... *THE UPPER RESPIRATORY TRACT HAS A DIRECT CONNECTION WITH THE MIDDLE EAR VIA THE EUSTACHIAN TUBE. ANY INFECTION OR ALLERGY IN THE NASAL CAVITY HAS THE POTENTIAL OF INFECTING THE MIDDLE EAR. AN INFECTION IN THE MIDDLE EAR CAN CAUSE DAMAGE TO OR OBSTRUCT THE MOVEMENTS OF THE OSSICLES AND THE EARDRUM. (SEE OTITIS MEDIA FOR FURTHER INFORMATION.)*

3. Otitis media.

... *INFECTIONS OF THE MIDDLE EAR CAN POTENTIALLY IMPEDE THE MOVEMENT OF OSSICLES AND EARDRUM BECAUSE OF: EXCESSIVE FLUID IN MIDDLE EAR; FLUID BUILDS UP TO A POINT THAT EARDRUM PERFORATES BECAUSE OF PRESSURE; REPEATED PERFORATIONS CAN CAUSE SCAR TISSUE THAT HAS POTENTIAL OF IMPEDING MOVEMENT OF EARDRUM; INFECTION OVER PERIOD OF YEARS CAN CAUSE ADHESIONS OF FIBROUS TISSUE THAT MAY PERMANENTLY IMPEDE MOVEMENT OF OSSICULAR CHAIN.*

4. Injury or head trauma.

... *SKULL FRACTURES OR ANY SEVERE BLOW TO THE HEAD COULD CAUSE DISLOCATION OR FRACTURE OF ANY ONE OF THE OSSICLES OF THE EAR.*

... *CAUSE VIOLENT WAVE OF AIR-CONDUCTED SOUND THAT COULD DAMAGE CELLS OF INNER EAR.*

5. Hypothyroidism.

... *HAS SAME POTENTIAL OF DAMAGE TO AUDITORY PATHWAYS AS TO CEREBRAL CORTEX DESCRIBED IN "THE DOCTOR"*

6. Presence of another handicapping condition-physical, mental, or emotional.

... *THERE IS A SLIGHTLY HIGHER INCIDENCE OF OTHER HANDICAPPING CONDITIONS OCCURRING WITHIN THE HEARING IMPAIRED POPULATION.*

7. Hereditary kidney disease in child or member of immediate family.

8. Ototoxic medications.

... *PROLONGED ADMINISTRATION AND LARGE DOSAGES OF ANTIBIOTICS AS GENTAMYCIN, KANAMYCIN, DIHYDOSTREPTOMYCIN, POLYMYXIN B, AND VANCOMYCIN CAN DESTROY THE SENSE CELLS IN THE COCHLEA.*

9. Diagnosis of brain tumor.

... *A BRAIN TUMOR CAN EFFECT AUDITORY PATHWAYS TO CORTEX INTERRUPTING IMPULSES BEING SENT, THEREFORE CAUSING A HEARING LOSS.*

10. Abnormal Hearing Behaviors.

PREVENTION

Prevention → Early Detection

1. Take the child to a physician at any complaint of an earache or if there is wetness or puss coming from the ear canal. Early medical treatment could prevent a hearing loss.
2. Take the child to a physician if: the child has an unusual amount of colds; if she/he seems to be having an ongoing cold; or is subject to allergies. Early detection of a middle ear infection could save the child discomfort and prevent a hearing loss.
3. Watch for any abnormal hearing behaviors after a child has had meningitis, encephalitis, measles, mumps, or roseola.
4. Watch for any abnormal hearing behavior after a child has taken any ototoxic drugs. Particularly the mycin drugs.
5. If the child complains of a ringing or roaring in the ears when taking a mycin drug, call the doctor. This may be a signal that the drug has reached ototoxic proportions in the blood stream.
6. Watch for any abnormal hearing behaviors after a child has had an injury or blow to the head. If he/she complains of aching and/or a roaring or ringing of the ears, call the doctor immediately.

DEVELOPMENTAL SIGNALS

3½ YEARS TO 5 YEARS

... Child can't locate source of sound.

... Child can't understand and use words such as go, me, in, big, etc.

... Child can't give connected account of some recent experience.

... Child can't carry out 2 simple directions in a row.

... Child can't carry on a simple conversation.

... Child's speech is hard to understand.

SCHOOL AGE

... Child's frequent inattentiveness, lack of concentration.

... Child's below par academic performance.

... Child's frequent colds, earaches.

... Child appears to be frequently disobedient.

... Child appears slow.

VISION !!!

Some Facts About Vision

... 1 in 20 children age 3 to 5 years has a vision problem.

... 1 in 4 school age children need eye care.

... 25% of school age children have eye difficulty.

... 50% of all blindness can be prevented.

... Eye defects are serious and must be detected and treated in the preschool years to prevent permanent reduction of vision or blindness.

... 500,000 individuals in the U.S. were born blind or with partial loss of sight.

... 1/3 of all blindness is due to birth defects.

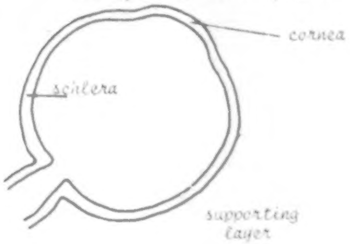
WHAT IS A VISION IMPAIRMENT?

Vision impairment can refer to acuity (the sharpness of visual image) or field of vision (normal central vision is within a 30° angle). Blindness - legally, medically and educationally does not mean a total loss of vision. This term usually refers to the amount of vision in the better of the two eyes. In relation to acuity, a child is considered blind, if with correction to his better eye, he cannot see an object at 20 ft. that a person with normal sight can see at 200 ft. This is termed an acuity of 20/200. A child is also considered blind if the width of his field of vision is narrowed to an angle of 20° or less in his better eye.

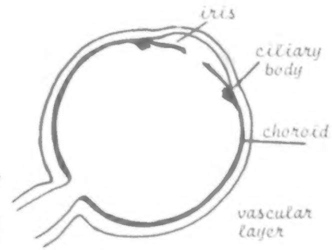
Vision impairments can be screened by a physician and are usually done in regular checkups for children. For diagnostic testing a specialist, optometrist or ophthalmologist, with specialized equipment is required. An optometrist is a doctor of optometry who is specifically educated, trained and state licensed to examine the eyes and related structures. They determine presence of vision problems, eye disease, or other abnormalities. An ophthalmologist is a physician specializing in diagnosis and treatment of defects and diseases of the eye. He/she also performs surgery when necessary or prescribes other types of treatment. Either an ophthalmologist or an optometrist may prescribe glasses which must be ground by an optician.

THE EYE

The eyeball is composed of 3 concentric layers.

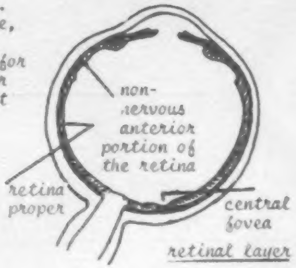


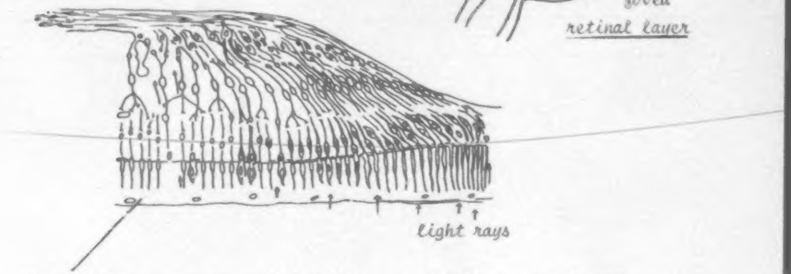
The 1st layer is the schlera and the cornea. The schlera is the tough opaque white of the eye. The cornea is the clear transparent portion of the front of the eyeball. The schlera and cornea form the external protective coat of the eye.



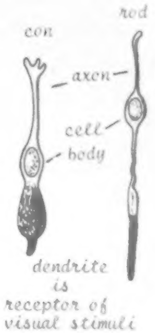
The 2nd layer includes the:
1) choroid a vascular membrane that contain blood vessels that supply nourishment to eyeball (particularly the retina-the innermost layer);
2) the ciliary body which is a ring of tissue between the iris and the choroid. It consists of muscles and blood vessels that nourishes and changes the shape of the lens (to be shown later on page 405). It also manufactures a fluid called the aqueous humor. 3) the iris is a membraneous ring which hangs behind the cornea. It contains pigment and is the colored part of the eye. Its open center is termed the pupil. By regulating the size of the pupil, the iris adjusts the amount of light that penetrates the eyeball.

The 3rd layer is termed the optic retina. This contains the sense organs of the eye, the receptor cells. The receptor cells are of 2 types, the rods-receptor cells for light and darkness-and the cones-receptor cells for color and form of an image. It also contains the nerve fibers from the optic nerve. The retina is composed of 4 functional layers, one of pigment cells and three layers of neuron cells.





Pigment layer - serves to absorb light. If these cells were not present, light would not be focused on the cones and rods. The light would be diffused causing a blurring of the image on the retina.

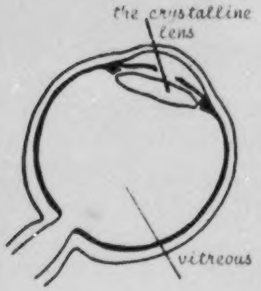


1st layer of neurons - The dendrites of the rods and cones receive the light stimulus. They are the only portion of their respective neurons at this level. Their cell bodies and axons extend into next layer to form synapes with the bipolar nerve cells.

2nd layer of nerve cells - These nerve cells extend their axons onto the next layer of cells to form a synapes with the ganglion cells.

3rd layer of ganglion cells - The axons of these cells run along the innermost surface of the retina and converge to form the optic nerve.

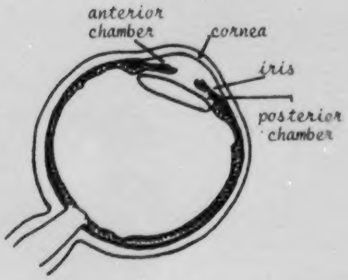
There are several more landmarks of the eye that must be identified and placed in relation to the 3 layers.



THE CRYSTALLINE LENS -
Behind the iris and its pupil is the crystalline lens. It is a colorless disk held in suspension by ligaments. Light rays are refracted by this lens and brought to focus on the retina.

VITREOUS BODY -
The largest part of the eyeball is composed of a colorless mass of soft gelatinous material. It is called the vitreous body and is the area between the lens and the retina.

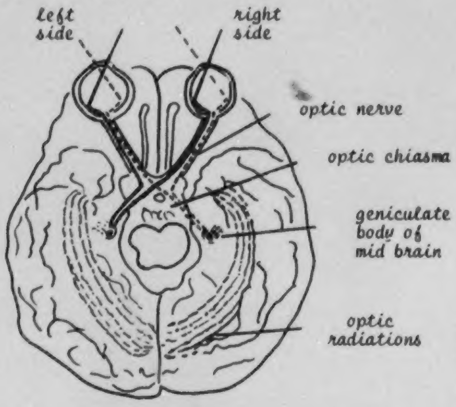
ANTERIOR CHAMBER -
The space in front portion of the eye between the cornea and the iris is termed the anterior chamber. It is filled with the aqueous humor produced by the ciliary body.



POSTERIOR CHAMBER -
The space between the iris and the lens is called the posterior chamber. It also contains a fluid termed aqueous humor produced by the ciliary body.

Optic Nerve

The optic nerve leaves or enters the eye socket at the back through an opening termed the optic disk. The axons from the 3rd neuron layer of the retina converge and form the optic nerve. The optic nerve from each eye runs backward and enters the brain cavity where they converge and form a partial crossing.

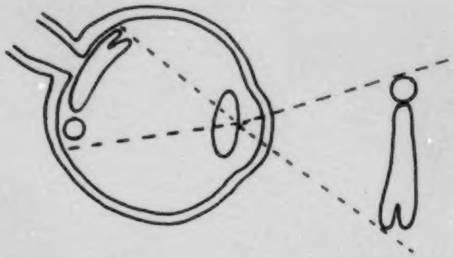


Only the fibers from the retina's inner half (side lateral to nasal cavity) cross; those from the outer side continue on the same side. The impulse or image on the outer part of one retina is the same as the inner or nasal side of the other eye. Therefore, by crossing the fibers carrying the same image, the total image caused by light waves from one side of the body are combined. After crossing and combining the fibers continue to mid brain and then to the occipital lobe of the cortex, the visual area of the brain. Here an upside down image is formed. Based on experience this image is psychologically transposed to form a vertical image.

HOW WE SEE

Vision is a complex function. It requires the eye, light to see by, and the brain to interpret what is seen.

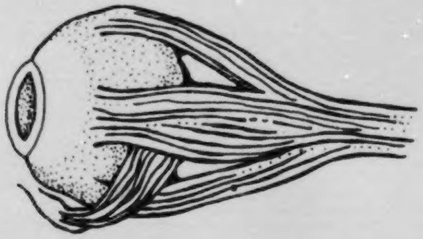
When light strikes an object in an individual's field of vision, light waves are reflected from the object to the eyes. The rays or waves of light are refracted by the optical system of the eye. This involves several lens systems, the cornea and aqueous humor of the anterior chamber, the lens, and the vitreous humor. The iris adjusts the amount of light entering this refractive system.



This type of refraction results in images being inverted. Humans actually see everything upside down, but the sensory impulses upon reaching the brain are processed so everything is perceived right side up.

When the rays penetrate the retina, a photochemical reaction is set up in the outermost layer of the retina. This chemical change stimulates the dendrites of rods and cones in the first section of neuron cells. The impulses then pass on through the synaptic junctions of the other neuron layers of the retina and onto the optic nerve. The optic nerve then carries the impulses to the brain.

The movement of each eye is controlled by 6 eye muscles. These muscles also provide support and protection to the



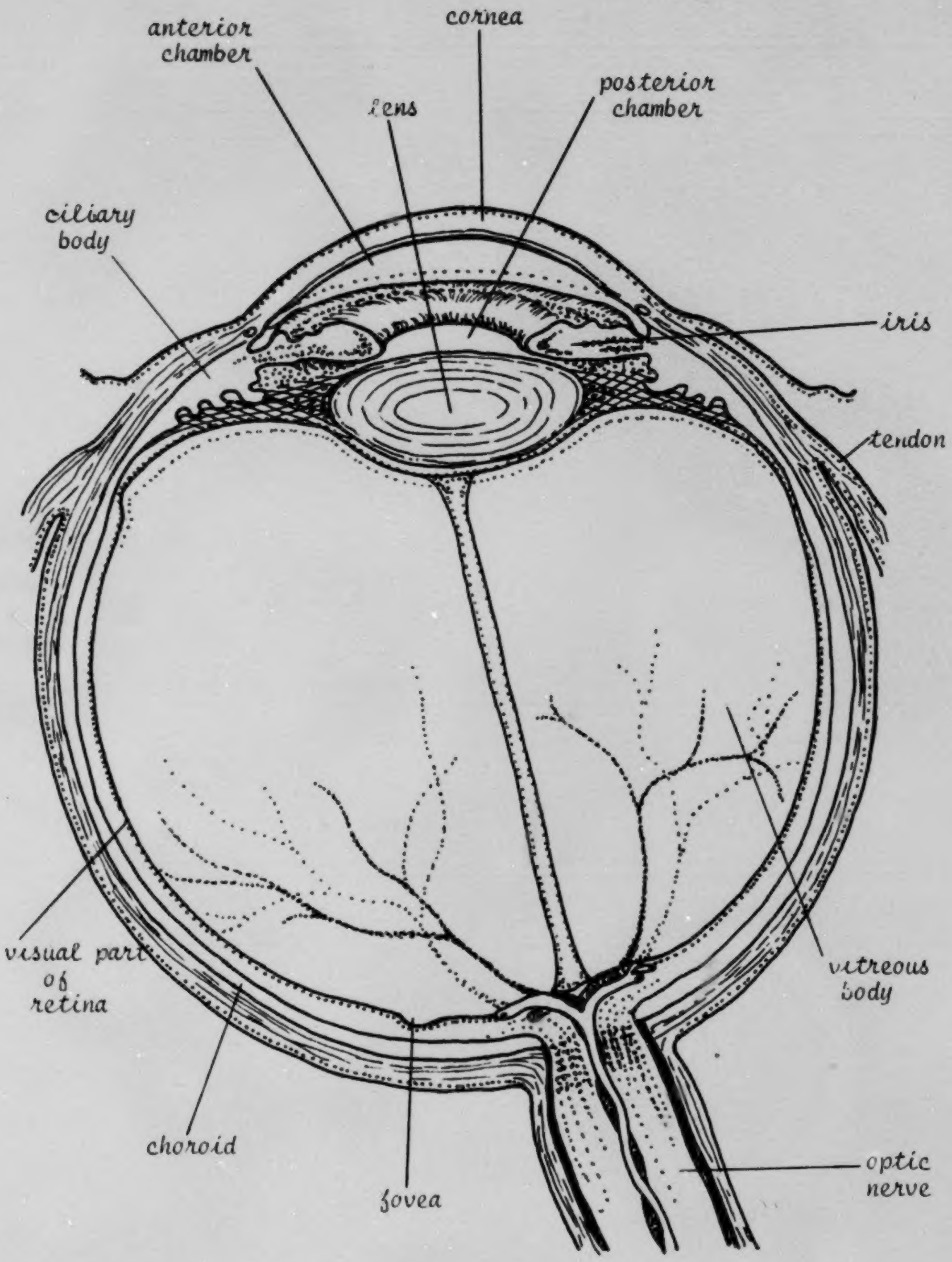
schlera, the outer covering of the eye. Through contraction of these muscles, the eye is able to focus directly on objects at different angles from the body. If the two eyes move synchronously and in unison, the eye functions at its optimum efficiency, allowing the 2 fields of vision to fuse as one. Since the eyes view an object at different angles, a "stereoscopic" effect occurs. This gives us a sense of depth and perspective.

Most people do not realize that the eye has two types of vision, peripheral or side vision and straight or central vision. Central vision includes the objects in a space seen without moving the head or eyes. Peripheral vision includes the perception of motion or color of objects outside this direct line of vision. These two types of vision occur because of the location and sensitivities of the rods and cones. The rods lay in the outer area of retina and function in peripheral vision, and the cones located in the center of the retina are most responsible for central vision.

Peripheral vision allows us to be aware of objects approaching from the side and without it we would constantly bump into things. Central vision allows us to read, do fine work, and see clearly at a distance. Both are important for optimum visual functioning.

Peripheral vision is present at birth or develops shortly thereafter. A baby is able to follow a light or object much before he is able to distinguish the characteristics of the object. Central vision develops only by constant practice in looking at and concentrating on the fine points of familiar shapes and outlines. Usually this process occurs automatically in both eyes.

The size of the eyeball somewhat influences this development. At birth the eye is only 2/3 its normal size. It does not reach mature growth until the child is approximately 8 years old. This immature size influences the muscle control of the lens and the muscle coordination of binocular vision. When full growth is reached optimum muscular control develops and allows for the integration of peripheral and central vision. The child then coordinates peripheral with central vision and is able to read phrases as opposed to words.


anterior chamber
cornea
lens
posterior chamber
ciliary body
iris
tendon
visual part of retina
vitreous body
choroid
fovea
optic nerve

THE RISKS!!

THE RISKS

PRENATAL

1. History of vision impairment in the family.
2. Familial biochemical abnormality associated with vision impairment.

   Diabetes mellitus
   Galactosemia
   Hyperlysinemia
   Homocystinuria
   Wilsons disease
   Lowes syndrome
   Marfans syndrome
   Muscular dystrophy
   Aniridia
   Albinism
   Retinoblastoma
   Color blindness

3. A family history that includes a chromosome abnormality.

   Downs syndrome
   Turners syndrome
   Pataus syndrome

4. Maternal infections such as

   Rubella
   Syphilis
   Toxoplasmosis

5. Maternal toxemia.

LABOR AND DELIVERY COMPLICATIONS

6. Prematurity or other complications such as cardiac difficulties that would require excessive and/or prolonged amounts of oxygen to be delivered to the infant.
7. Precipitous or prolonged labor.

POSTNATAL

8. Endocrine or metabolic imbalances.

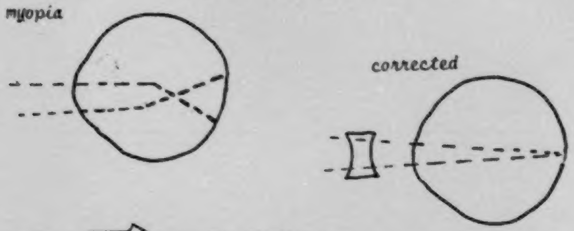
   Hypercalcemia
   Hypocalcemia
   Diabetes
   Hyperthyroidism
   Hypoparathyroidism
   Excessive amounts or deficiency of vitamin A
   Riboflavin deficiency

9. Nutritional deficiencies or starvation.
10. Electric shock, chemical burns, a foreign body, injuries or blows to the eye.
11. Infectious diseases such as measles, meningitis, encephalitis, fungi.
12. Neoplasms (tumors).
13. The "developmental signals" of a vision impairment.

VISION IMPAIRMENTS THAT CAN OCCUR IN CHILDHOOD

Refractive Errors

Myopia or nearsightedness is caused by the retina being too long or the lens being too thick and curved. It may develop between the ages of 6 and 8 years of age. This physical abnormality causes the light rays to bend or curve too much. The image falls in front of the retina. A myopic child can see well at near distances but cannot focus on far objects. Since the child has no reference for knowing that its vision is incorrect, he or she pays no attention to distant objects. This may cause the child to develop a withdrawn personality because 1) She or he cannot perform well in gross motor play, particularly involving ball skills, and 2) assignments put on the blackboard or materials utilized at a distance cause the child to miss assignments or key factors needed for optimum performance. Consequently the child may develop feelings of failure academically and socially.



Prevention ⇨ Early Detection

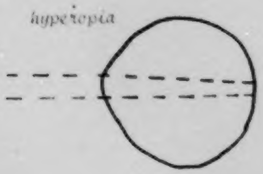
1. Take the child for regular periodic eye checks by an optometrist or ophthalmologist from 3 years on.
2. Take the child to a physician, optometrist or ophthalmologist if he/she shows any "developmental signals".

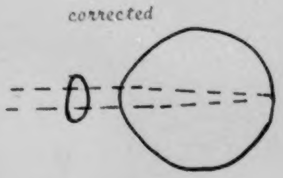
3. Have the child fitted for corrective glasses when necessary.

Results - improved visual acuity for visual stimulus and improved self-esteem.

Hyperopia or farsightedness is more common than myopia and can occur at any age. In this impairment the eye is too short; causing the image to be focused behind the retina. The child sees better at a distance than close up. If the child's eyes are otherwise healthy he may be able to use the normal adaptive powers of the lens to see well at close distances without correction. But this can cause fatigue of the eye muscles and headaches. If hyperopia is severe enough, a very young child may cross the eyes in an effort to achieve a sharp image. This could result in crossed eyes or strabismus.

Strabismus is a very serious eye abnormality and results in a severe impairment of vision.



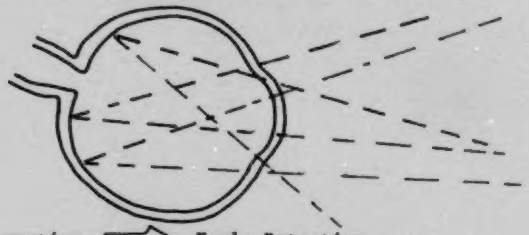


Prevention ⇨ Early Detection

1. Take the child for regular periodic eye checks by an optometrist or ophthalmologist at age 3 and thereafter.
2. Have the child's eyes examined if he/she demonstrates any "developmental signals".
3. Have the child fitted for corrective glasses when necessary.

Results - improved vision and aversion of a severe visual impairment.

Astigmatism results from a defect in the curvature of the cornea. This causes a refractive disturbance that allows diffusion of light rays on the retina, preventing a sharp focus. This type of impairment will affect all distances. It can cause the child to form an aversion to reading because of the physical discomfort this refractive error causes. If uncorrected a serious visual impairment can occur, bilaterial amblyopia (see amblyopia).



Prevention ⇨ Early Detection

1. Take the child for regular eye exams by an optometrist or ophthalmologist at age 3 and thereafter.
2. Have the child's eyes examined if she/he shows any of the "developmental signals".
3. Have the child fitted for corrective glasses when necessary.

Results - improved vision and aversion of a serious visual impairment.

Strabismus affects the parallelism of the eyes. Both eyes are not straight or properly aligned but are turned in, up, or down. The cause can be a birth injury, heredity, interrupted development of muscle attachments, excessive farsightedness or nearsightedness and infectious diseases. Since the eyes are looking in two different directions, the child's brain receives two visual images that are too different to be fused into a single image. To compensate for this the child mentally blocks out one image. If this suppression continues during the early years vision can be either partially or completely lost in the weaker eye.

Prevention ⇨ Early Detection

1. Be aware of family history of strabismus.
2. Be aware of high risk factors.
3. If strabismus occurs the infant or child should be taken to a physician as soon as condition is noticed.

4. Treatment may consist of glasses, eye exercises, patching or a dark lens for the dominating eye, medication to allow easier focusing or surgical repair of muscles.

Results - if treated early enough sight will be preserved in the weak eye, allowing the child to have binocular vision of normal accuity with or without lenses.

Amblyopia is a serious eye impairment that can lead to permanent reduction of vision if not detected early in life. It is similar in nature to strabismus, but more insidious since it is not noticed by an untrained observer. It is caused by one eye having an optical imperfection causing it to turn in or out while the other eye sees straight. The blurred image is unreconcilable with the clear one causing the child to block out the imperfect image. Consequently the weak eye does not develop vision. If not detected early in life this can cause a permanent reduction of vision (partially or complete) in the weak eye.

Prevention ⇨ Early Detection

1. An awareness of family history of strabismus.
2. An awareness of high risk factors.
3. The infant or child should be taken to a physician or ophthalmologist as soon as the condition is noticed.
4. Have the child's eyes examined regularly by an optometrist or ophthalmologist from age 3 and thereafter.
5. Have the child's eyes examined if he/she shows any of the "developmental signals".
6. Follow the prescribed treatment which may include patching, glasses, eye exercises or surgery.

Results - if treated soon enough, sight will be preserved in the weak eye.

Retrolental Fibroplasia (RLF) is a disorder in which the retina detaches and a grayish membrane develops behind the lens. This is the result of poisoning from excessive oxygen. This occurs in premature babies (or those infants requiring oxygen therapy for cardiac or other congenital defects) that receive too much oxygen for too long a period of time in an incubator. Since the cause of retrolental fibroplasia was found in 1954 the incidence from this disease has decreased from 24% to 8% as a causal factor of blindness. Since 1954 oxygen is used in an incubator only when necessary to save the life of a premature infant or neonate with cardiac problems. In the premature infant concentration of oxygen is carefully monitored and ophthalmological examination is done regularly to detect any changes in the retina. Oxygen is discontinued as soon as possible. Rentrolental fibroplasia has developed in some newborns that have not been given oxygen therapy. In these cases causal factors are unknown.

Prevention ⇨ Early Detection

1. Eliminate any high risk factors which might cause prematurity.
2. The infant should have an ophthalmological exam at birth.
3. Parents should be aware of risk factors of RLF.

Results - parents awareness of RLF condition allows them to provide optimum environmental stimulation for mental growth.

A Cataract is a clouding of the lens of the eye which shuts out light from the retina. Cataracts are one of the most common causes of vision impairment. Half of all blindness caused by cataracts is the result of a birth defect. Some of the specific defects include: congenital rubella; congenital syphilis; inborn errors of metabolism as galactosemia, diabetes mellitus, or homocystinuria; chromosome abnormalities, Turner's Syndrome, Patau's Syndrome, or Down's Syndrome; low birth weight of premature infants; genetic-autosomal dominant or recessive trait. Cataracts can appear on one eye or on both. The exact vision impairment depends on the thickness and location of the opacity. Some cataracts consist of: small, tiny flecks on an otherwise clear lens; a complete or partial opacity of the lens; or a radiation from the center of the lens in one or more spokes. The only effective treatment is removal of the lens surgically. Eye glasses, contacts, or intraocular lens are then substituted for the lens so that light focuses on the retina.

In an infant or young child it is important that a cataract be detected early so that if surgery is required it can be done early enough to preclude the cataract causing loss of potential for normal sight. The retina must be light stimulated before visual pathways can be developed. Restoration of normal vision depends on occurrence of other eye abnormalities as well as early detection.

Prevention → Early Detection

1. Parents should, as much as possible, eliminate prenatal risk factors.
2. The infant should have an ocular exam at birth.
3. Vision screening should be done during well-baby checkups.
4. Parents should recognize risk factors in their child.
5. Parents should immediately contact the physician if they notice a cloudy appearance to the eye.
6. Parents should have child's eyes examined if she/he shows any "developmental signals".
7. The child should have preschool vision screening by age 3 and a yearly vision checkup thereafter.
8. If surgery is indicated it should be done as soon as possible so that maturation of the retina can continue.

Results - if detected early, the greatest possible preservation of sight.

Retinoblastoma is an inherited neoplasm (tumor) of the eye. It is particularly insidious as it is the only known malignant tumor to be inherited in a autosomal dominant pattern. Although it is passed on by a dominant gene, not everyone with a dominant gene for this disorder will develop retinoblastoma. The only treatment is to remove the affected eye. The malignancy can spread to the brain or elsewhere by way of the optic nerve. Of the children with retinoblastoma only 1/2 survive.

Prevention → Early Detection

1. An awareness of family history of neoplasms.
2. Genetic counseling for the parents.
3. A newborn eye examination.
4. Well-baby checkups.
5. Take baby to a physician if any "developmental signals" appear.

Results - the parent may not only save the child's sight but its life.

SIGNALS

General symptoms that may occur from birth on.

... The child squints or blinks when concentrating on visual input.
... The child's eyes are crossed.
... The child favors one eye more than the other when looking at an object.
... One or both of the child's eyes turn in or out.

(Some crossing is normal up to 6 months because of immaturity of muscle control - if in doubt consult a physician.)

... The child's pupils are hazy.
... The child's eyes are tearing excessively, are red, or the eyelids are encrusted with matter.
... The child tilts its head strangely when concentrating.
... The child turns or tilts its head abnormally.
... The child has frequent or persistent sties.

Infant

0 TO 3 MONTHS
... The infant doesn't pay attention to a visual stimulus.
... The infant doesn't look at a toy in range of vision.
... The infant doesn't track an object in its visual field.
... The infant doesn't engage in visually watching or playing with its hands.

3 TO 6 MONTHS
... The baby doesn't reach for toy in visual field.
... The baby doesn't make eye contact when being fed or cuddled.
... The baby doesn't visually inspect toys in its hand.

6 TO 9 MONTHS
... The motor skills of a baby do not develop such as rolling over, sitting or crawling.
... The baby does not appear to discriminate between similar objects or people.
... The baby does not pick up small objects successfully.

9 TO 12 MONTHS
... The baby shuts or covers one eye when focusing.
... The baby holds playthings very close to its eyes.
... The baby bumps into large objects when crawling.
... The baby rubs its eyes excessively.
... The baby does not attempt to grasp spoon or cup when being fed.
... The baby does not appear to notice interesting objects that are at a short distance.

... The baby does not notice interesting details of a toy.
... The baby does not appear to be interested in bright colored objects.
... The baby does not imitate simple motor play such as dusting or wiping eating tray, waving bye-bye, or pat-a-cake.

12 TO 24 MONTHS

... The toddler's walking is delayed.
... The child bumps into large objects.
... The toddler is not interested in playing ball.
... The toddler is not interested in picture books.
... The toddler holds books or objects very close or far from the eyes to see them.
... The toddler appears to be afraid to walk or move in a strange environment.
... The toddler is clumsy and awkward for his age.

24 MONTHS TO 5 YEARS

... The child stumbles over small objects.
... The child bumps into large objects, is clumsy and awkward.
... The child is not interested in games involving catching, throwing, bouncing, tagging.
... The child is not interested in tasks that require sustained visual concentration.
... The child is not interested in books or television.
... The child complains of
headaches
nausea
dizziness
burning or itching of eyes
blurring of vision.
... The child cannot see distant things clearly.
... The child places head close to task he is doing.
... The child does not notice color differences.

SCHOOL AGE - KINDERGARTEN ON

Teacher or parent observes

... The child's body is rigid while looking at distant or near objects.
... The child avoids close work.
... The child has short attention span - daydreams.
... The child places head close to book or desk when coloring, reading, or writing.
... The child using unusual or fisted pencil grasp, frequently breaking pencil.
... The child has a spidery, excessively sloppy, or very hard to read handwriting.
... The child closing or covering one eye.
... The child dislikes tasks requiring sustained visual concentration. Nervousness, irritability, restlessness, or unusual fatigue after maintaining visual concentration.
... The child losing place while reading and using the finger or a marker to guide the eyes.
... The child has difficulty in remembering what is read.
... The child skips words and re-reads.
... The child has difficulty remembering, identifying, and reproducing basic geometric forms.
... The child has difficulty in sequential concepts.
... The child has poor eye-hand coordination and unusual awkwardness including difficulty with stairs, throwing or catching ball, buttoning, unbuttoning, tying.
... The child displays developmental immaturity.
... The child has a low frustration level, is withdrawn, and has difficulty getting along with children.

LEARNING DISABILITIES

INCIDENCE

1. 20% of school age children show evidence of a learning disability.
2. 3 to 5% of the children aged 3 to 10 years will have a severe learning disability.
3. 10% of total children with learning disabilities have behavior problems.
4. 5% of U.S. school children have a learning disability.
5. 15 to 20% of all elementary children suffer from some degree of learning and behavior disabilities.

Confusing statistics!!! Actually this field seems to be plagued with confusion and disagreement not only on incidence, but diagnosis, remediation, education, causation, and terminology.

There are over 40 different terms used by professionals to describe behavioral and learning problems that this text will refer to as a learning disability. Some of them are:

dyslexia
perceptual handicap
developmental imbalance
minimal brain dysfunction
hyperkinesis
hyperkinetic
hyperactive
minimal brain injury
visual-motor problems
allergy
specific learning disability
dysagraphia
dyscalculia
dysorthographia
over-reactive
hypersensitive
communication disorder
receptive aphasia
expressive aphasia
aphasic

Learning disabilities are caused by a dysfunction in the central nervous system. But it is not generalized brain damage as in mental retardation, epilepsy, or cerebral palsy. It occurs somewhere along the neuron pathways, in the mid brain, or in very small specific areas of the cortex. It results in an impairment of

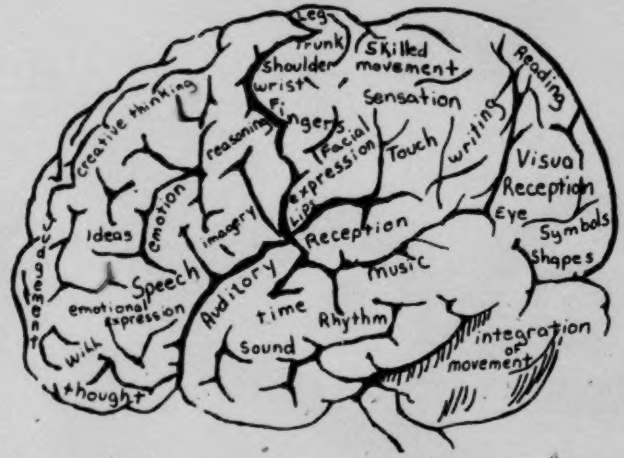
... collecting information
... sorting or processing information
... storing information
... expressing information.

Any one or all of these impairments could occur in any one or all of the sensory-neural pathways. This means that the pathways of hearing, vision, touch, or smell could be affected. Figure 71 represents some of the processing problems of learning for each sense. This only gives a basic idea of the complexity of a learning disorder. A child could have a problem involving all of the sense avenues or any combination of these four (sense integration). The possibilities are many. The more multiple the problems the more severe and complicated is the learning disability.

Figure 71. Some of the Processing Problems of Learning For Each Sense.

	EXAMPLES OF DISABILITY IN			
	Collecting	Processing	Storing	Expression
HEARING	1. Words have no meaning. 2. Sounds have no meaning. 3. Sentences have no meaning. 4. Tone Deafness 5. No rhythm	1. Confuses speech sounds that sound alike. 2. Doesn't discriminate differences between words that sound alike. 3. Confuses environmental sounds.	1. Doesn't remember speech over long or short period of time. 2. Doesn't remember number sequence after hearing it. 3. Doesn't remember sequence of sound.	1. Difficulty in expressing him or herself through speech. 2. Can't say words. 3. Can't say some sounds.
VISION	1. Judges depth, distance or size incorrectly. 2. Doesn't perceive differences in colors.	1. Can't differentiate shapes, letters, sizes. 2. Can't class similar objects & can't sort colors or letters.	1. Can't remember sequence of written letters or numbers. 2. Can't remember details of a picture.	1. Can't read orally. 2. Can't name objects, colors, etc.
TOUCH or motor movement	1. Doesn't differentiate different textures or tastes. 2. Doesn't perceive tactile information coming from one body area.	1. Would not be able to differentiate objects or textures by touch only. 2. Poor body image problem in discriminating sensation as hot & cold.	1. Would not remember directions. 2. Could not remember how to jump, throw a ball, roll, etc. 3. Would not remember tactile sensations as hot or cold.	1. Coordination problems. 2. Problems in playing motor games such as ball. 3. Would not be able to write. 4. Would not be able to type.
SMELL	1. Doesn't respond to odors.	1. Doesn't differentiate a noxious odor from a pleasant one. 2. Doesn't associate an odor with object it comes from.	1. Doesn't remember where he/she smelled a particular odor.	

Figure 72. Cortex of Brain With Hiearchy of Cortical Function Labeled.


Leg
Trunk
Shoulder
wrist
Fingers
Skilled movement
Sensation
Reading
creative thinking
reasoning
Facial expression
Lips
Touch
writing
Visual Reception
Eye
Symbols
Shapes
Ideas
emotion
imagery
Reception
music
Judgement
Speech
emotional expression
Auditory
time
Rhythm
Sound
will
thought
integration of movement

We do know some things that learning disabilities are not:

1. Not a sensory impairment. The ears and eyes receive accurate impressions but the brain does not translate them correctly. Either the pathways distort or are incapable of transmitting the message.
2. Not a result of emotional problems. But learning disabilities can cause them, which sometimes causes a problem in diagnosis.
3. Not mental retardation. Learning disabled children do well in some areas and poorly in others. A retarded child does not have this unevenness. He or she is consistently slow intellectually.
4. Not cultural deprivation when considering it a lack of environmental stimulation. Children from stimulating homes also have trouble walking, reading, writing, speaking and so forth.

"RISKS AND SIGNALS"

In the discussion of learning disabilities the risk factors and the developmental signals are intertwined. A diagnosis is dependent on the number of risks the child incurred and the number and severity of behavioral or developmental abnormalities present. More than any other disorder, it is of prime importance for parents to remember and recognize these risks and signals. It could make the difference between a correct and incorrect label being placed on a child.

There seems to be a variety of risk factors at play. The experts in the field have been in disagreement for years as to which are actually the causal agents. The trend now is for the professionals to feel it could occur from multifactoral agents or any number of agents could cause the same disability.

THE RISKS

Prenatal

... mothers age over 36 or under 18
... maternal anemia
... maternal high blood pressure
... maternal toxemia
... maternal convulsions

... drugs taken by the mother such as alcohol, narcotics, hormones, etc.
... bleeding or threatened miscarriage
... maternal infections such as herpes simplex, pneumonia, influenza, rubella, chicken pox, toxoplasmosis
... maternal smoking
... poor maternal nutrition
... weight gain excessive or too little
... gestational period less than 36 weeks
... gestational period more than 42 weeks
... accident or injury
... baby very active in the uterus
... Rh factor
... ABO incompatability

Hereditary

... history of male members having reading problems
... history of male members being hyperactive
... history of Biochemical disorders such as
    diabetes   hypoglycemia
    allergies   asthma
    migraine headaches
... history of temper or crime in members of family

Labor and Delivery

... prolonged labor
... precipitated labor
... Caesarean section
... difficult delivery
... breech birth or other abnormal birth position
... delayed birth
... premature separation of placenta
... obstruction of birth canal by the placenta, cord, or a growth
... forcep delivery
... premature birth
... induced labor

Newborn

... low birth weight - under 5½ lbs.
... high bilirubin level - jaundice
... required oxygen
... placed in incubator
... cyanotic - appearing blue caused by lack of oxygen
... exchange transfusion
... poor sucking
... lethargic

Childhood

... hospitalized for operation or serious illness
... head injury
... infections as pneumonia, high fevers, meningitis or encephalitis
... dehydration
... inhaled object
... convulsions
... fainting spells
... dizziness
... blank or staring spells
... metabolic disorders such as
    hypoglycemia   hyperthyroidism
    hypothyroidism   diabetes
... nutrition deprivation such as
    lack of Vitamin B
    lack of zinc
... lead poisoning
... allergies from
    foods or chemicals
    eczema
    hives
    asthma
    frequent ear infections
    formula changes

THE SIGNALS

The child

- is distractable
- is impulsive
- has short attention span
- throws, breaks toys
- takes toys apart or destroys them
- has no self control
- pushes and fights
- has discipline problems
- over asserts - bullies, is mean, surly
- has rapid mood swings
- is nervous
- breaks furniture
- has temper outbursts
- has a Jekyll-Hyde behavior
- is a restless sleeper
- is a deep sleeper
- is sleep resistant
- is a bed wetter after age 5
- is hyperactive
- is withdrawn or daydreams
- is a loner
- is disturbed by small noises or movements
- is easily stimulated in a group or crowds
- overreacts to pain, touch, cold, is ticklish
- is better in one-to-one situation
- is unable to cope with new situations
- laughs or cries easily
- chews blankets, buttons, furniture
- bites or pecks nails, twists hair, bangs head
- twitches, bed rocks, sucks thumb or pacifier
- is fidgety, wiggly, a foot tapper
- is motor driven - constantly moving
- walked early
- is restless
- is a truant, runs away
- responds to stimuli in a physical way, touching everything
- has poor motor coordination
- is clumsy
- climbs, is a dare devil, is accident prone
- insists demands be met
- talks continuously
- does not finish work
- has no responsibility for own work

- has writing problems
- has reading problems
- has spelling problems
- has math problems

Prevention ⇨ Early Detection

1. Parents should be aware of risk factors.
2. Parents should have an awareness of developmental signals.
3. Parents should consult a physician about the child if the child shows at least 5 signals and has a risk factor in its history.
4. Parents should consult physician about
   a. medication for hyperactivity. (There are some drugs that are helpful in controlling hyperactivity but should be prescribed by a physician.)
   b. allergies
   c. nutritional deficiencies
   d. metabolic disorders.

"What Can A Parent Do?"

With a learning disabled child much of the remediation, correction and treatment is dependent on the parent. There are several general actions a parent should take to lessen the effects of a learning disability.

Action #1. Make a complete history of the child. Include details about pregnancy, birth, diseases, accidents, behavior problems, etc. These are important in determining a diagnosis.

Action #2. Have regular follow-up visits with a physician.

Action #3. Seek counseling for child and/or parents. Any child is taxing but a hyperactive, over-approacher is particularly so.

Action #4. Contact local agency or group for learning disabled children.

Action #5. Understand that the child's behavior and problems are upsetting and disappointing to him also. No one wants to fail, be disliked, or be constantly in trouble.

Action #6. Provide a structured home environment. Routine lessens confusion. Set up a schedule for daily activities such as meals, play, T.V. watching, bedtime, school, etc., and stick to it!!

Action #7. Keep child's room uncluttered and simple. Have a place where he/she can store things out of sight.

Action #8. Let the child know what is expected of her/him.

Action #9. Cope with emotional swings by shifting attention. Use short-and-to-the-point instructions.

Action #10. Experiment with a child's diet. Avoid any and every food your child eats more than once a week. When child improves, add the foods back to the diet one at a time, to see which ones disagree and which ones do not.

Action #11. Join a parents group such as the local chapter of Association for Children With Learning Disabilities.

Action #12. Learn all you can about learning disabilities and hyperactivity.

Action #13. Give the child lots of love, affection and praise. We all need rewards. They make us feel good about ourselves.

⇨ **Pretest**

Cognitive

1. A hearing, vision, or learning disability could limit a child's
   ____ a. stimulation from the environment.
   ____ b. intellectual growth.
   ____ c. both.

2. Early identification of a sensory or learning disability is important so that a parent may
   ____ a. provide appropriate stimulation at the most opportune learning time.
   ____ b. provide necessary medical treatment to prevent further damage.
   ____ c. both.

3. Toxemia, heredity, maternal infections, bleeding, are
   ____ a. newborn risks.
   ____ b. prenatal risks.
   ____ c. risks of parenting.

4. __________ are high risks of the growing years that could result in a vision, hearing, or learning disability.
   ____ a. Blow to the head, infections, poor nutrition, drugs, metabolic disturbances
   ____ b. A snake bite, cut, broken nose, and anemia
   ____ c. T.V., reading, rock music, household and environmental pollutants
   ____ d. None of the above

5. Bumps into objects when crawling, holds objects close to his/her face when playing, doesn't attempt to grasp spoon or cup when eating, are developmental signals of a
   ____ a. hearing impairment.
   ____ b. learning disability.
   ____ c. vision impairment.

6. A child that develops speech late, does not enjoy musical toys, appears disobedient, uses lots of gestures to communicate, and watches the parent's face when he/she is talking could be showing developmental signals of a
   ____ a. learning disability.
   ____ b. vision impairment.
   ____ c. hearing impairment.

7. __________ are developmental signals of a learning disability.
____ a. Temper outbursts, mood swings, hyperactive, impulsive, walked early
____ b. Sleep resistant, better in a one-to-one situation, overreacts to pain, touch, cold.
____ c. Both of the above

8. The retina is the sensory receptor of
____ a. the eye.
____ b. the ear.
____ c. both of the above.

9. The eye's main structures are the
____ a. iris, vitreous body, cornea, and lens.
____ b. malleus, stapes, and incus.
____ c. cochlea and ossicles.

10. We see by
____ a. light rays being refracted by a membranous drum of the eye.
____ b. light rays being refracted by the cornea and lens onto the retina.
____ c. light rays being refracted by the retina onto the iris.

11. __________ are vision impairments that can occur during childhood or infancy.
____ a. Cataracts, tumors, amblyopia
____ b. Nearsightedness, astigmatism, and farsightedness
____ c. Both of the above

12. ____ The ear is divided into three (3) sections - the outer, middle, and inner ear.
____ a. true
____ b. false

13. __________ contain the sense cells for hearing.
____ a. The cochlea of the inner ear
____ b. The ossicles and eardrum
____ c. The retina

14. We hear by:
____ a. light rays that are converted into electrical impulses.
____ b. the structures of the ear conducting mechanical sound waves and changing them into nerve impulses in the inner ear.
____ c. sound waves hit the retina and are converted into electrical impulses.

15. A learning disability is caused by
____ a. massive cell damage as in mental retardation.
____ b. impairment of the central nervous system with no definite site of lesion evident.
____ c. damage to the structures of the eye or ear.

16. An inability to collect, sort, store or express information is a
____ a. vision impairment.
____ b. hearing impairment
____ c. learning disability

17. __________ is/are problems caused by a learning disability.
____ a. Blurred vision or impaired hearing,
____ b. Reading problems, short attention span, depth perception, writing problems, speech problems,
____ c. Inability to learn,

Key: 1.c, 2.c, 3.b, 4.a, 5.c, 6.c, 7.c, 8.a, 9.a, 10.b, 11.c, 12.a, 13.a, 14.b, 15.b, 16.c, 17.b.

Affective Barometer

Circle the word or words which best describe the intensity of your feelings.

1. I feel that a child from birth on may incur risks that could affect the hearing, vision, and learning processes.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

2. I feel it is important to identify the high risks of a hearing, vision, learning disability.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

3. I feel that early identification of a sensory or learning disability is important for optimum development of a child's intellectual capacity.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

4. I feel, as a parent, it is important to have an awareness of normal growth and development.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

5. I feel that a deficiency in normal growth and development could be a signal of a hearing, vision, or learning disability.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

6. I feel that a child with a high risk history should be observed closely for deviations in development.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

658

7. I feel, as a parent, it is important to discuss any deviations in development with the child's physician.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

8. I feel that regular physical checkups are important for early detection of vision, hearing, or learning disabilities.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

9. I feel it is important that an infant at risk of a hearing loss have regular screening tests for the first 2 years.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

10. I feel that it is important for an infant at risk of a hearing loss to have a diagnostic hearing test if: the infant shows any abnormal hearing behaviors; the infant fails two screening tests; the parent has reservations about his/her infant's ability to hear.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

11. I feel that a food allergy could contribute to the problems of a learning disabled child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

12. I feel it is important for a preschooler to have his or her eyes tested by age 3½.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

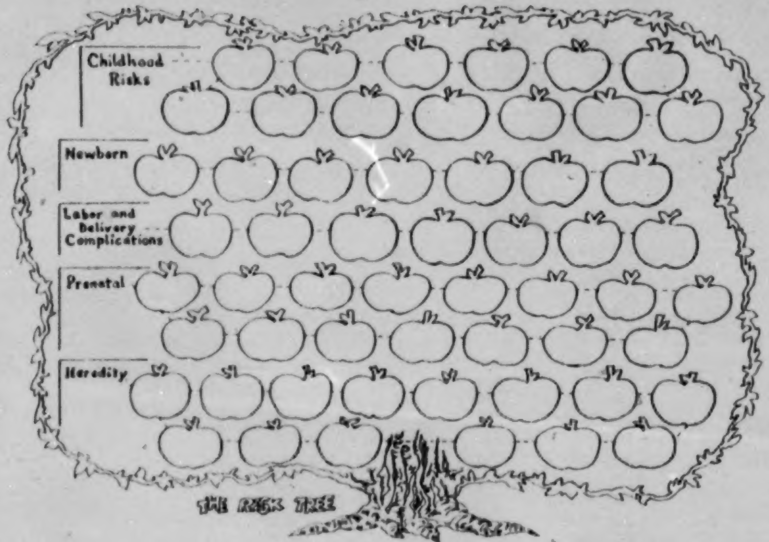
13. I feel that medication could be of benefit to some hyperactive learning disabled children.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

689

Mini Lecture or Presentation

Give each student a risk tree as they come into the classroom prepared from ditto 133. A sample of ditto is shown below.



In the previous chapter we discussed the importance of stimulation for the development and growth of neuron pathways which result in our intelligence.

QUESTION: What would happen to a child without stimulation?

CONCEPT: *The child's intelligence would not develop up to its potential.*

QUESTION: What would inhibit or stop a child from receiving adequate stimulation to develop his or her intelligence?

CONCEPT: *A hearing impairment, visual impairment, learning disability, or behavioral disability all have the potential of limiting stimulation.*

Right! Stimulation might not be available in the child's environment or not be provided by the parents. There also could be a physical deficiency that would stop the child from receiving stimulation. Now what are your ideas??

Correct! A vision or hearing impairment could limit the amount of stimulation the child receives. A learning disability or behavior disability could also result in a lack of stimulation. These two are a result of stimulation not being sorted, processed, or screened appropriately by the child's brain and neural pathways. In all four cases the child's impairment could make the normal and spontaneous types of stimulation inadequate for intellectual growth. The parent will need to modify and change the child's environment and experiences. This must occur at the earliest possible time to insure the optimum development of the child's intellectual potential.

Children develop on a type of inborn biological time table. Usually one developmental milestone seems to spring from another. If the child has a sensory deficit it could influence its whole developmental time table or the quality of development. If one sensory input is lacking and delays a developmental stage, that stage has the potential of delaying the next and the next and the next and so on. Or if the stimulation the child receives is distorted by the impairment, faulty concepts or perceptions develop which could affect the development of another concept and another and another and so on.

OK! Now that you have gotten the picture of the impact of a sensory or learning disability let me ask this:

EARLY DETECTION

QUESTION: As a parent how would you go about detecting a vision, hearing, learning, or behavior disability very early in a child's life? Think!

CONCEPT: *Early detection requires: knowing the aspects of prenatal and post natal development that put the child at risk; recognition of physical signs and behavior symptoms; knowing what normal development is.*

You have all come up with some good thoughts. Let's see if I can paraphrase them and add a few other ideas you might not have considered.

First - All parents need to know if their child is at high risk of having or developing a hearing, vision, behavior, or learning disability. From the time a child is conceived he is vulnerable to certain agents that could affect his or her intellectual and/or physical growth. The more of these negative agents a child experiences the greater the chance of developing physical abnormalities that could affect his or her intellectual development. If the parent knows and is aware of what these agents are he/she will be watching for developmental signals. Knowing the risks and signals, allows the parent to act with corrective measures at an age when it is most effective for the child.

Second - The parent needs to be aware of physical symptoms and or unusual behavior that indicates a deficit has occurred or will occur without medical treatment. I have already eluded to these - *THE DEVELOPMENTAL SIGNALS!* Detecting these signals is dependent on the third factor.

Third - The parent must be familiar with normal development. All children have: their own way of learning to walk or talk; their own repertoire of emotional behaviors; their own unique personal characteristics; their own sleeping habits; etc. These aspects are what makes an individual unique. The parent must differentiate between the characteristics and the deviations in normal development. If the parent does not have an idea of the biological timetable, she/he may miss some important "developmental signals".

Let's review the high points of what we have discussed.

1. Stimulation is the key to intellectual growth.
2. Sensory, learning, and behavior disabilities can limit stimulation and therefore intellectual growth.
3. Early detection permits corrective and preventive action to begin at an age when it is most effective.
4. The factors of early detection are
   a. knowing "risk factors".
   b. knowing "developmental signals".
   c. being aware of what is normal.

Another question!!!

QUESTION: If the parents identify these "risk factors" and "developmental signals", what is the next step?

CONCEPT: *The parents make certain the child receives treatment, correction, diagnosis, or assistance from expert professionals in the fields of medicine, education, audiology and vision.*

OK! Let's hear some of your ideas! What would you do?? Ideas! Ideas! (Lead discussion to include the concept.)

Each of you has a risk tree. During class we will be talking about the possible risks that a child incurs from conception on. As we do, I want you to fill in the circles on the risk tree according to the areas marked: heredity; prenatal; labor and delivery; and growing. Let's begin!

HEARING

If possible introduce this unit of study with a film or record about hearing.

Films:

Hear Better: Healthy Ears # 18
We Tiptoed Around Whispering # 28
Silent World, Muffled World # 28

Record:

Getting Through, Available from: Local Zenith Hearing Aid Dealer.

After the film or record use transparencies along with the following discussion.

TRANSPARENCY #8

Some Facts:

... One child in every 15 is born deaf or acquires a severe hearing loss soon after birth.
... Three children in 100 have impaired hearing.
... There are two million school age children who have a hearing loss that could seriously effect learning.

QUESTION: How would a hearing impairment harm a child's learning?

DISCUSSION: That's right! A child with a hearing loss may be unable to understand speech and unable to learn speech normally. An infant that hears normally learns speech through listening and then by imitating what she or he hears. It is through speech and hearing abilities that a child learns to communicate, which in turn enables the child to socialize and develop interpersonal relationships. Hearing entices an infant to explore and develop an understanding of its environment. Hearing is a distance sense that invites children into the world.

> "An infant hears a teakettle whistle from another room. This sound excites and entices him to move toward the kitchen, the source of the sound. Along the way the child experiences all sorts of tactile and visual stimulus. On reaching the kitchen the child: sees the mother take the teakettle from the stove; sees the steam; sees her pour the water into a cup; hears the water being poured; hears the mother say "hot, don't touch"; smells the aroma of coffee; sees her take a drink from the cup."

The child has experienced lots of stimulation and has been exposed to many concept building blocks.

QUESTION: What would have happened if the child had not heard the teakettle?

DISCUSSION: Right! The child would never have experienced all those tactile and visual stimuli on the way to the kitchen. Nor would the child's attention have been drawn to: the mother pouring water into a cup; the steam; the mother saying "hot"; etc. So many experiences, concepts, and language building blocks would have been missed. If auditory experiences are missed over and over, every day, for months and years, think of the accumulation of concepts and knowledge the child is missing.

QUESTION: How many of you have been walking and needed to cross the street? Your mind is on other things, and you neglect to look for traffic. I think we have all had that experience. What happens when we go into the street?

DISCUSSION: Right! If a car is coming the driver honks his horn. We are warned of the danger of being hit. What if we could not have heard the horn? What would have happened??? Can you think of other situations that hearing serves as a signal of danger.

QUESTION: What kind of feelings would a child develop over a period of time without auditory cues signalling her or him of approaching danger?

DISCUSSION: Good discussion. I enjoyed your thoughts and insights. Through our discussion we have all concluded that hearing serves as a warning signal, draws us into our environment for exploration and learning, clarifies concepts, and is the building block for communication and socialization.

THE EAR

"The Sense Organ for Hearing!"

(Prepare transparencies 9 through 15. Present transparencies on a screen as indicated during the following presentation.)

TRANSPARENCY #9

This is the ear. Each part is vital for normal hearing.

QUESTION: Can anyone name or point to the 3 major geographical areas of the ear?

DISCUSSION: Very good! Let's go over them again. First there is the outer ear, the middle ear, and the inner ear. Each is anatomically structured for the optimum mechanical conduction of sound. The outer ear consists of the auricle and the ear canal. The pinna helps localize the sound and directs the sound waves down the ear canal. The ear canal is structured so that it maximizes the potential of the sound wave.

The next structure is the eardrum. It is the boundary between the outer and middle ear *(point to middle ear)*. The eardrum is a membranous structure

TRANSPARENCY #10

and vibrates when sound waves hit it. In this tiny, tiny area, the middle ear, we see 3 small bones. Each is connected to the other by ligaments and/or muscles. The first of the chain is attached to the eardrum. These 3 small bones are called the ossicles. To give you an idea of how small they really are; the middle ear cavity, the area that the ossicles lay in, is the size of an aspirin. Can you imagine that!! Those tiny, tiny bones all put together are smaller than an aspirin. Each one has a name which is somewhat indicative of what it does. First is - the malleus (hammer), second - the incus (anvil), and third - the stapes (stirrup).

The last little bone, the stapes, ends in an opening called the oval window. This landmark lies between the middle and inner ear. The inner ear is the last of the main structures of the ear. It is composed of 2 sections - the semicircular canals and the cochlea. The semicircular canal has the sense cells for registering the movement and position of our body in space. This is why some people are dizzy when they have an ear infection. The cochlea is the sense organ for hearing. It has many receptor cells that when stimulated send impulses to the brain and are registered as sound. The cochlea is a coiled up tube that might remind you of a snail. Like the snail the outer cover is a hard bony mass. Inside is a fluid and a membrane that is the same shape as the outer, bony area. This membrane contains a nutritive fluid and the sense cells for hearing. To clarify the inner ear structure we also need to realize that the semicircular canals are made of the same outer bony cavity and fluid and an inner membrane which contains receptor or sense cells. To the right of the cochlea you can see the auditory nerve coming from the cortex. Its fibers disperse through the bony cavity and into the sense cells of the membranous cochlea and also has a branch of fibers going to the semicircular canals.

TRANSPARENCY #11

TRANSPARENCY #12

That's a lot of information isn't it!! Let's review the high points.

1. The ear has 3 parts, outer, middle and inner.
2. The ear is very small. (Middle ear being the size of an aspirin.)
3. The middle ear contains an eardrum and 3 small bones.
4. The inner ear contains the receptor or sense cells.
5. The sense cells for hearing are in the cochlea of the inner ear.
6. The auditory nerve has fibers going into the cochlea.

TRANSPARENCY #13

Now we know how the ear is constructed.

Question: How do you suppose it works to change the sound waves into electrical impulses?

Discussion: That's right! The sound waves come in the outer ear, down the ear canal, and hit the eardrum. The eardrum vibrates and in turn moves the first ossicle, the malleus, which in turn moves the incus, which in turn moves the stapes. When the stapes moves the end of it starts to rock. Now remember the end of the stapes lies in or directly in front of an opening in the inner ear. Behind the opening is the fluid. When the stapes rocks in this opening the fluid inside the bony cavity of the cochlea moves. It, in turn, creates pressure, displaces or vibrates the membranous cochlea containing the sensory cells of hearing. (The exact nature of how the membranous cochlea is innervated is not exactly known.) This pressure or displacement causes the fluid in the membranous cochlea to move. The fluid movement excites the hair cells which in turn excite the fibers from the auditory nerve producing electrochemical impulses to be sent to the brain along the auditory nerve.

And that is how we hear!!!

Question: Which part of the ear would, if damaged, cause a hearing loss?

A really tricky question because each part has a specific function in conducting sound waves. If any part malfunctions or is damaged or destroyed the sound waves are not transmitted correctly and can result in a hearing impairment.

That is why hearing impairments are sometimes classified according to the site of impairment in the ear.

TRANSPARENCY #14

Conductive loss - would be a problem in the outer or middle ear.

Sensory loss - would be a problem in the inner ear.

Mixed loss - would be a combination of conductive and sensory.

Central loss - would be a problem in the auditory nerve outside of the cochlea, up to the brain, or the auditory receptive area of the brain.

The type of loss will have a lot of bearing on treatment and correlates to some characteristics of sound waves that we need to consider. We hear sound and relate it to 2 characteristics, loudness and pitch. These 2 differentiations correspond to the characteristics of a sound wave. The wave has cycles. When the number of these increases, the higher the sound. The higher

TRANSPARENCY #15

or taller the wave the more pressure is exerted and the louder the sound. So you can see the structure of the ear is such that it maximizes these mechanical aspects - the loudness or intensity and the frequency or pitch. Now let's get back to the types of impairments. Let's see if we might be able to figure out how a conductive, sensory neural, mixed or central loss affects the sound characteristics of loudness and pitch.
Let's consider.

Question: How would a conductive loss effect the pitch or frequency and the intensity or loudness?

In a conductive loss the mechanical process of the ear is affected. This causes the sound waves to be limited in number and height. The low frequencies and the loudness of the sound are affected. If the structures of the middle ear were gone, one would still hear very loud speech and loud sounds. This happens because the sound waves are conducted by the bones of the head. The fluid of the inner ear and sense cells are stimulated by the vibrations of the skull.

Question: How about a sensory neural loss?

The high frequencies would definitely be affected because of the placement of the receptor cells in the cochlea. Loudness and the discrimination of sounds are affected depending on the place and number of damaged sense cells. Without the cochlea we would be unable to hear any sound; there would be no sense cells present to register the sound and change the mechanical energy into electrical impulses.

Question: And what about a mixed loss?

A mixed loss is obviously a combination of conductive and central neural loss, one that affects the loudness and the pitch.

Question: What would be the characteristics of a central loss?

This would cause the person not to understand what is heard. The mechanism for conducting receiving sounds are there but somewhere along the way to the brain there is damage or few pathways. This would lead to an inability to understand sounds and speech.

A central loss could be accompanied by a conductive and/or sensory neural loss.

Now we have talked about the ear, how it conducts sound and the parts that could malfunction. Lets look at the risk tree and consider some of the risks that could cause the hearing impairments that have been discussed.

Question: Who has any idea as to the risks involved prenatally?? IDEAS? THINK?

(Get the kids to come up with responses and write them on the board. Make sure they write them on their risk tree IN THE AREA FOR PRENATAL RISKS. Ditto 133, THE RISK TREE.)

That was terrific brainstorming. You thought of almost all the prenatal influences. I've added a couple that you missed. *(Make sure the list includes all of following.)*

Prenatal Influences

1. History of deafness or hearing impairment in family.
2. Familial biochemical abnormalities such as diabetes and hypothyroidism.
3. Blood incompatibilities such as
    - Rh factor
    - ABO incompatibilities.
4. Maternal viruses or infections such as
    - Rubella Influenza Chickenpox
    - Measles Mumps Toxoplasmosis.
5. Maternal toxemia.
6. Bleeding during 1st trimester.
7. Maternal use of drugs, toxic to the developing fetus.

Any of these conditions could be an interfering agent in the normal development of the fetus. This interference could cause malformations of outer, middle, or inner ear. If one of these agents occurs after the ear is formed it could inhibit the normal growth of sense cells or nerve fibers.

Hereditary defects account for 1/2 of childhood deafness. There are 45 genetic syndromes of hearing loss.

Question: How about the risks during labor and delivery?

Write these on the risk tree for labor and delivery!
(Get students to come up with some responses and write them on the board. Make certain to include all of the following.)

Risks of Labor and Birth

1. Premature birth.
2. Fetal distress due to maternal shock.
3. Extremely short labor.
4. Prolonged labor.
5. Induced labor.
6. Maternal use of drugs.
7. Delayed birth.
8. Any difficult delivery which could cause a birth injury such as:
   a. abnormal birth position of baby
   b. disporportionate size of the unborn baby
   c. obstruction of birth canal by the placenta, cord or a growth.
9. Forcep delivery.
10. Premature separation of placenta from the uterus.

These conditions could lead to 1) undue trauma on the immature ear causing damage to the inner ear or auditory pathways of the brain; 2) damage to the sense cells or neurons in cortex or inner ear because of lack of oxygen or cerebral hemmorhage.

In the newborn baby there are 3 risk factors.

Newborn Risks

1. High levels of bilirubin collecting in the cerebral cortex and auditory pathways, can act as a poison and destroy the neurons or sense cells for hearing.
2. The combination of noise in a hospital and in an incubator may put an infant placed in an incubator at risk for a "noise induced loss". Increasing the risk is the fact that incubator babies have a greater incidence of illnesses which require drugs, ototoxic in nature. In test animals the combination of these two factors caused damage to the sense cells of the inner ear.
3. A congenital malformation of the external ear, cleft lip, or palate carries a higher risk for accompanying malformation of the middle and inner ear.

The chance of hearing impairment is so great with any of the prenatal or newborn risks that researchers are now urging doctors and hospitals to form a high risk register. This register would allow babies at high risk to be followed closely. A high risk register could probably identify three out of four severe hearing losses.

If you should have an infant that has any of these risks in its history you should: *[Pass out ditto 134.]*

1. Watch for any "developmental signals" that are cues of abnormal hearing behavior.
2. Have the child's hearing screened regularly during the first 2 years of life. A gross screening test can be done by the child's physician during well baby checkups. This may appear to be over-cautious, but an infant's hearing is difficult to evaluate; and a loss may not show itself until a child is a year or two old. This is particularly true in hereditary impairments.
3. Make certain a child gets a diagnostic hearing test by an otolaryngologist, an otologist, or an audiologist if
   a. you observe any abnormal hearing behaviors
   b. the baby responds unsatisfactorily on two screening tests.
4. Have a diagnostic hearing test if there are any doubts about the baby's hearing ability. It is better to be sure than sorry.

"DEVELOPMENTAL SIGNALS"

(Pass out ditto 135. Discuss the "Developmental signals" of abnormal hearing.)

"DEVELOPMENTAL SIGNALS"

0 TO 3 MONTHS

... Newborn is not startled in response to a sharp clap within 3 feet.

... Newborn is not soothed by mother's voice.

... Inconsistent response in newborn to sound - responds to loud sound but not to soft sound or high sound versus low sound.

3 TO 6 MONTHS

... Baby does not search for source of sound with eyes.

... Baby does not respond to cooing and babbling of parents.

... Baby does not imitate its own noises (oohs, ba-bas, etc.).

... Baby does not enjoy sound-making toys.

... Inconsistent response in baby to sound - responds to loud sound but not to soft sound or high sound as opposed to low sound.

6 TO 10 MONTHS

... Baby does not respond to name, telephone ringing, or to someone's voice.

... Baby does not understand phrases as no-no or bye-bye.

10 TO 15 MONTHS

... Child cannot point to or look at familiar objects or people.

... Child does not imitate simple sounds and words.

... Child does not respond to no-no or name unless he/she sees the speaker.

... Child does not hear someone at door.

... Child shows no interest in radio or television.

15 TO 18 MONTHS

... Child does not follow simple directions.

... First words of a child such as bye-bye, no-no, go-go, etc., are not developing.

18 MONTHS TO 3½ YEARS

... No noticeable increase in toddler's vocabulary.

... Child uses gestures almost exclusively to establish needs and desires as opposed to verbalizing.

... Child watches parent's face intently when speaking.

... Toddler doesn't enjoy being read to.

... Child has history of earaches or ear infections.

... Child appears disobedient.

"EARLY CHILDHOOD RISKS"

In early childhood the risks keep building up. In fact you have the possibility of incurring these risks also!! Still have your risk tree?

1. Infection can invade the inner ear by way of the bloodstream or through the cerebrospinal fluid. The fluid of the bony cavity of the inner ear is connected to the cerebrospinal fluid through a small canal. Consequently

infections that are in the spinal fluid have the potential of spreading to the inner ear. Regardless of the mode of access, infections can damage the sense cells or auditory pathways in the cortex.

QUESTION: Can you name some childhood illnesses that might damage the ear or brain?

- meningitis
- encephalitis
- measles
- mumps
- chicken pox

2. The upper respiratory tract has a direct connection with the middle ear through the eustachian tube. Any infection or allergy resulting in the inflammation of the nasal cavity has the potential of infecting the middle ear. A middle ear infection can damage the ossicles (the 3 small bones), obstruct their movements, or inhibit the vibrations of the eardrum.

3. An infection called otitis media can impede the movements of the ossicles and eardrum because of the fluid that builds up in the middle ear.
   a. too much fluid causes extreme pressure and results in the eardrum tearing.
   b. repeated tears can cause scar tissue that make the eardrum less flexible.
   c. infections over periods of years can cause fibrous tissue to form on and around the ossicular chain, slowing and even stopping their movement.

4. The presence of another handicap may put the child at risk for a hearing loss. There is a slightly higher incidence of hearing loss occurring in the handicapped population.

QUESTION: What would be the underlying factor for this statement?

Many risks that cause other types of handicaps also are capable of causing a hearing impairment.

5. A hereditary kidney disease in the child carries with it a risk of developing a hearing impairment.

6. Antibiotics such as gentamycin, kanamycin, dihydrostreptomycin, polymyxin B, and vancomycin all have the potential of being ototoxic. The risk involved depends on the dosage and the length of time they are taken. If administration is prolonged (sometimes the situation warrants this) they can destroy the cells of the inner ear.

7. An injury or blow to the head could cause dislocation or fracture of one of the ossicles. It also could cause a violent wave of air-conducted sound that could damage the cells of the inner ear.

8. Hypothyroidism is a metabolic imbalance that has the potential of depriving the sense cells and neuron cells of the auditory pathways of needed oxygen.

Prevention ⇨ Early Detection

(Pass out ditto 136 so students can follow along.)

1. Take the child to a physician at any complaint of an earache or if there is wetness or puss coming from the ear canal. Early medical treatment could prevent a hearing loss.
2. Take the child to a physician if: the child develops an unusual amount of colds; if she/he seems to be having an ongoing cold; or is subject to allergies. Early detection of a middle ear infection could save the child discomfort and prevent a hearing loss.
3. Watch for any abnormal hearing behaviors after a child has had meningitis, encephalitis, measles, mumps, or roseola.
4. Watch for any abnormal hearing behavior after a child has taken any ototoxic drugs. Particularly the mycin drug group.
5. If the child complains of ringing or roaring in the ears when taking a mycin drug, call the doctor. This may be a signal that the drug has reached ototoxic proportions in the blood stream.
6. Watch for any abnormal hearing behaviors after a child has had an injury or blow to the head. If the child complains of aching and/or a roaring or ringing of the ears, call the doctor immediately.

VISION !!!

Introduce this unit of study with one of the following films.

Jamie	# 15
Johnny's New Word	# 33
The Lazy Eye	# 33
The Miracle of Vision	# 36

Some Facts:

- ... 1 in 20 children between the ages of 3 and 5 has a vision problem.
- ... 1 in 4 school age children need eye care.
- ... 25% of school age children have eye difficulties.
- ... 1/3 of all blindness is due to birth defects.
- ... 50% of all blindness can be prevented.
- ... Eye defects are serious and must be detected and treated in the preschool years to prevent permanent reduction of vision or blindness.
- ... 500,000 individuals in the U.S. were born blind or with partial loss of sight.

QUESTION: How many of you have or wear glasses? How many of you can do without your glasses?

DISCUSSION: So many of us here in the classroom have vision impairment. Those of us who need glasses to read, move around, play sports, eat, walk down a street, etc., can really understand what an undetected eye impairment would do to an infant or child's learning potential. Is there anyone who has an image or concept of being legally blind or partially sighted? OK! Probably none of us have had any experience to equate what it would be like. Let's play a word game. You will need a pencil and paper. We are going to list as many words or phrases we can think of that involve sight to help us understand the meaning. You will need to do some brainstorming. Let me get you started!

(Give some of the following examples, then encourage students to continue.)

big
small
tall
short
wide
fat
thin
bright
dark

stripes
polka dots
paisley
print
plaid
spider web
ant
a hue
dim

microscopic
sky
sky scraper
sun
moon
airplane
a prism
blazing
light

Let me see that?
He's down by the tree.
Turn right at the station.
The cups are in the big drawer.

OK! Time is up. What did you come up with? Excellent!!

QUESTION: If you were blind or partially sighted how would you clarify the meanings of some of these words?

DISCUSSION: Right!! You would use your sense of touch, but the sense of touch is very limited. We can't feel things such as ants, or spider webs, airplanes, colors, the sky, large buildings, oceans. These things are too large, too small, too distant, too delicate, or have no tactile characteristics at all. To clarify this a little more let's play another word game.

We'll need to divide into four groups. We can use the four corners of the room for group gathering. Each group will take words and/or phrases listed, and put them into categories of words that cannot be clarified by touch. Each group may add any new words that apply to their category.

Group I - Your category is Too Large To Touch Or Feel.
Group II - Will cover objects or thoughts Too Small To Touch.
Group III - Will deal with the category Too Distant To Touch.
Group IV - You have a multiple category including Words or Phrases Depending on Color Concepts.

You have 15 minutes. Get started!

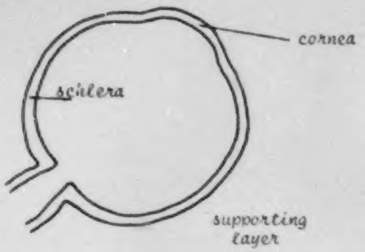
When time is up have the students share their categories. Stimulate discussion stressing misconception and lack of concepts a child might develop if she or he were blind or partially sighted. Ask the following questions and discuss.

1) *Does the sense of touch put limits on the things a child can learn?*
2) *How would a partially sighted or blind child learn and comprehend the things he or she cannot see or feel?*

THE EYE AND HOW IT WORKS!

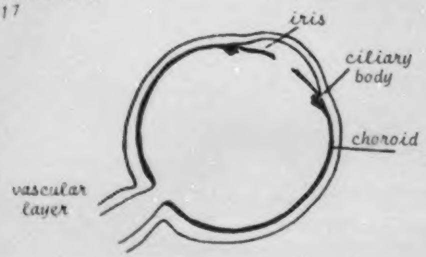
The eyeball is composed of 3 concentric layers.

OVERLAY
TRANSPARENCY
#16



The 1st layer includes the schlera and the cornea. The schlera is the tough opaque white of the eye. The cornea is the clear transparent portion of the front of the eyeball. The schlera and cornea form the external protective coat of the eye.

OVERLAY
TRANSPARENCY
#17

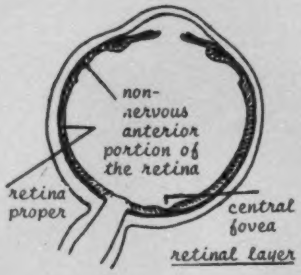


The 2nd layer includes the:
1) choroid a membrane that contains vessels that supplies nourishment to the eyeball,
2) the ciliary body which is a ring of tissue between the iris and choroid. It consists of muscles and blood vessels that nourish and change the shape of the lens, which we will discuss later.
3) the iris is a membranous ring of the 2nd layer. It hangs behind the cornea. It contains pigment and is the colored part of the eye.

QUESTION: What is the opening in the center of the iris called and what does it do?

DISCUSSION: Right! It is called the pupil. By regulating the size of the pupil the iris adjusts the amount of light that penetrates the eyeball.

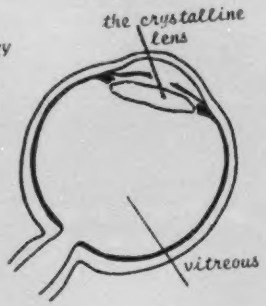
OVERLAY
TRANSPARENCY
#18



The 3rd layer is termed the retina. This contains the sense organ of the eye, the receptor cells. The receptor cells are of 2 types, the rods-cells for light and darkness-and the cones-receptor cells for color and form. It also contains the nerve fibers from the optic nerve.

There are several more landmarks of the eye that must be identified and placed in relation to the 3 layers in order to understand the function of the eye.

OVERLAY
TRANSPARENCY
#19



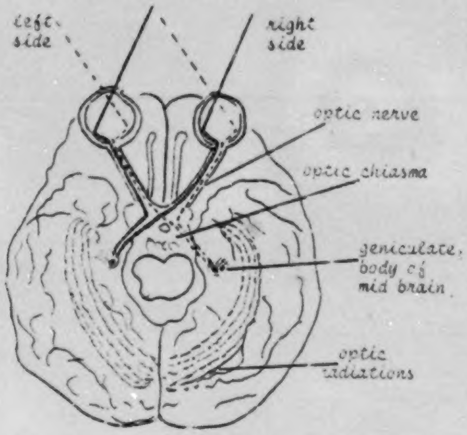
THE EYE
COMPLETE

The CYRSTALLINE LENS lays behind the iris. It is a colorless disk held in suspension by ligaments of the ciliary body. Light rays are refracted by this lens and brought to focus on the retina.

The VITREOUS BODY is the largest part of the eyeball. It is composed of a colorless mass of soft gelatinous material between the lens and the retina.

The last part of the eye that we are interested in is the optic nerve. The optic nerve leaves or enters the eye socket at the back through an opening termed the optic disk. The axons from the neuron layer of the retina converge and form the optic nerve. The optic nerve from each eye runs backward and enters the brain cavity where they converge and form a partial crossing.

TRANSPARENCY
#20



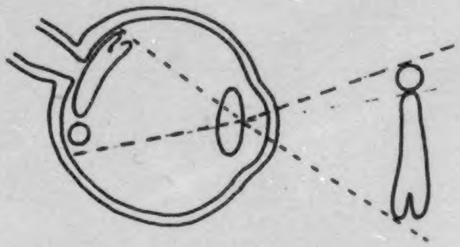
They then proceed to the mid brain and then to the occipital lobe of the cortex, the visual area of the brain.

QUESTION: Why does the optic nerve from each eye only partially cross? What would be the purpose of impulses from one eye combining with the other eye at this point?

DISCUSSION: Look at the transparency for clues. Who has some IDEAS?? Good thoughts. Let's clarify what you have said. The impulse or image on the outer part of one retina is the same as the inner or nasal side of the other eye. Therefore by crossing the fibers carrying the same image, they are combined. The total image caused by light waves from one side of the body are converged. This converging is done by having only the fibers from the eyes inner half cross. This is the half closest to the nose. The fibers from the outer sides of the eye continue on the same side. After crossing and combining the fibers continue to mid brain and then to the occipital lobe of the cortex, the visual area of the brain. Here an upside image is formed. Based on experience this image is psychologically transposed to form a vertical image.

When light rays hit the cornea they are refracted or bent so that they are directed to go behind and a little beyond the cornea. Thus causing the rays to penetrate the lens at the most opportune point. The lens then bend or refract the ray a little more causing the ray to travel through the vitreous body and hit the retina. The refraction of the rays through the lenses focus the ray of light so that a sharp image is stimulated on the retina.

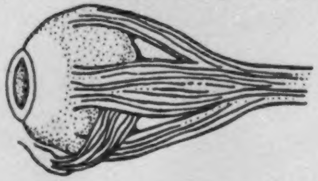
TRANSPARENCY
#21



When the rays penetrate the retina a photochemical reaction is set up in the outermost layer of the retina. This chemical change stimulates the rods and cones. The impulses then pass on through the synaptic junctions of the other neuron layers of the retina and onto the optic nerve. The optic nerve carries the impulses to the brain.

The movement of each eye is controlled by 6 eye muscles. These muscles also provide support and protection to the

TRANSPARENCY
#22



schlera, the outer covering of the eye. Through contraction of these muscles, the eye is able to focus directly on objects at different angles from the body. If the two eyes move in synchronization and in unison, the eye functions at its optimum efficiency, allowing the 2 fields of vision to fuse as one. Since the eyes view an object at different angles a "stereoscopic" effect occurs. This gives us a sense of depth and perspective.

QUESTION: What are the types of vision?

DISCUSSION: Most people do not realize that the eye has two types of vision, peripheral or side vision and straight or central vision. Central vision includes the objects in a space seen without moving the head or eyes. Peripheral vision includes the perception of motion and color of objects outside this direct line of vision. These two types of vision occur because of the location and sensitivities of the rods and cones. The rods lay in the outer area of the retina and function in peripheral vision, and the cones located in the center of the retina are most responsible for central vision.

Peripheral vision allows us to be aware of objects approaching from the side and without it we would constantly bump into things. Central vision allows us to read, do fine work, and see clearly at a distance. Both are important for optimum visual functioning.

Peripheral vision is present at birth or develops shortly thereafter. A baby is able to follow a light or object much before it is able to distinguish the characteristics of the object. Central vision develops only by constant practice in looking at and concentrating on the fine points of familiar shapes and outlines. Usually this process occurs automatically in both eyes.

QUESTION: Does the eyeball grow after birth?

DISCUSSION: Lets take a poll. If you agree raise your hand. If you think it doesn't grow, raise your hand. Those of you who said yes are correct. At birth the eye is only 2/3rd its normal size. It does not reach mature growth until the child is approximately 8 years old. This immature size influences the muscle control of the lens and the muscle coordination of binocular vision. When full growth is reached optimum muscular control develops and allows for the integration of peripheral and central vision. The child then coordinates peripheral with central vision and is able to read phrases as opposed to words.

Let's look at the risk tree again and consider the risks of vision impairment. This time we'll compare the risks of hearing impairment to those of vision. We'll do this by naming a hearing risk and then discussing the effect it could also have on vision.

Who wants to start first?

(After a student gives a risk and an opinion as to whether it could apply to vision, respond appropriately using the following list as a guide.)

THE RISKS

PRENATAL

1. History of vision impairment in the family.
2. Familial biochemical abnormalities that are associated with vision impairment.

   There are many more inborn errors of metabolism that put a child at risk for vision impairment than for hearing impairment. This is because the eye is not fully developed at birth and is more susceptible to injury from chemical abnormalities.

   Diabetes mellitus
   Galactosemia
   Hyperlysinemia
   Homocystinuria
   Wilsons disease
   Lowes syndrome
   Marfans syndrome
   Muscular dystrophy
   Aniridia
   Albinism
   Retinoblastoma
   Color blindness

3. Chromosome abnormalities.

   Downs syndrome
   Turners syndrome
   Patau's syndrome

4. Maternal infections such as

   Rubella
   Syphilis
   Toxoplasmosis

   Most infections in the mother have potential of interfering with the fetus' growth. The type and severity of the vision impairment depends on when the infection occurs during gestation. This holds true for hearing also.

5. Maternal toxemia.

LABOR AND DELIVERY

6. Prematurity.

The causal factor is different than in a hearing impairment. Oxygen, if given in large quantities and for a prolonged period, is toxic to the eye and can result in Retrolental Fibroplasia. This is a condition we will consider later. It occurs in infants that are premature or have other complications that require prolonged amounts of oxygen.

7. Precipitous or prolonged labor.

POSTNATAL

8. Endocrine or metabolic disturbances.

There are many more of these disturbances in the risk category for vision than for hearing. The list includes

Hypercalcemia or Hypocalcemia
Diabetes
Hypoparathyroidism
Excessive amounts or deficiency of Vitamin A
Riboflavin deficiency
and
Hyperthyroidism

Why hyperthyroidism? In hearing, hypothyroidism is the risk. It causes an excessive amount of oxygen to be given or presented to the cells. Excessive amounts of oxygen are toxic to the eye. In the ear it is the lack of oxygen that causes the damage.

9. Nutritional deficiencies or starvation.

The eye, because it is not mature at birth, requires an adequate level of nutrition to grow and develop.

10. Injury to the eye from electrical shock, chemical burns, or a foreign body.

11. Injury to the eye from a blow could cause hemorrhage of the blood vessels in the eye which could result in a detached retina or other insults to the sense cells.

12. Infectious diseases such as measles, meningitis, encephalitis and fungi.

Infectious agents have the same damaging potential to the sense cells of the eye as they do the the ear.

13. Neoplasms (tumors) are also a risk for vision impairment. We will discuss this type of problem later.

(Duplicate the developmental chart of Chapter IV, dittos 110 through 121. Make enough copies of dittos 110 through 121 so that you have a set for every 4 students in the class. Make copies of ditto 137 for each student.)

Each of you has a signal sheet. Take your signal sheet and divide into groups of four. Not too noisy!! OK!! Each group will receive a developmental chart that we looked at a few weeks ago. As a group, take the chart and review the developmental behaviors at each age level. Decide what the "developmental signals" should be for each age group. Write them on your signal sheet. You will want to make them complete. They are for your reference at a later point. When you have finished we will compare "developmental signals". Have fun but keep some seriousness!!!

(When the students are finished compare their developmental signals to those listed below. Discuss.)

"DEVELOPMENTAL SIGNALS"

General symptoms that may occur from birth on.

... The child squints or blinks when concentrating on visual input.
... The child's eyes are crossed.
... The child favors one eye more than the other when looking at an object.
... One or both of the child's eyes turn in or out.

Some crossing is normal up to 6 months because of immaturity of muscle control - if in doubt consult a physician.

... The child's pupils are hazy.
... The child's eyes are tearing excessively, are red, or the eyelids are encrusted with matter.
... The child tilts its head strangely when concentrating.
... The child turns or tilts its head abnormally.
... The child has frequent or persistent sties.

INFANT

0 TO 3 MONTHS

... The infant doesn't pay attention to a visual stimulus.
... The infant doesn't look at a toy in range of vision.
... The infant doesn't track an object in its visual field.
... The infant doesn't engage in visually watching or playing with its hands.

3 TO 6 MONTHS
... The baby doesn't reach for toy in visual field.
... The baby doesn't make eye contact when being fed or cuddled.
... The baby doesn't visually inspect toys in its hand.

6 TO 9 MONTHS
... The motor skills of a baby do not develop such as rolling over, sitting or crawling.
... The baby does not appear to discriminate between similar objects or people.
... The baby does not pick up small objects successfully.

9 TO 12 MONTHS
... The baby shuts or covers one eye when focusing.
... The baby holds playthings very close to its eyes.
... The baby bumps into large objects when crawling.
... The baby rubs its eyes excessively.
... The baby does not attempt to grasp spoon or cup when being fed.
... The baby does not appear to notice interesting objects that are at a short distance.
... The baby does not notice interesting details of a toy.
... The baby does not appear to be interested in bright colored objects.
... The baby does not imitate simple motor play such as dusting or wiping eating tray, waving bye-bye, or pat-a-cake.

12 TO 24 MONTHS
... The toddler's walking is delayed.
... The child bumps into large objects.
... The toddler is not interested in playing ball.
... The toddler is not interested in picture books.
... The toddler holds books or objects very close or far from the eyes to see them.
... The toddler appears to be afraid to walk or move in a strange environment.
... The toddler is clumsy and awkward for its age.

"VISION IMPAIRMENTS OF CHILDHOOD"

QUESTION: Can any of you name some vision impairments? *(Wait for response.)*

DISCUSSION: You have named a few. Let me add to your list. I think you will be surprised at some of the vision impairments that can occur in childhood.

As I go along, I'll be giving some of the mechanics of the impairment and what the results would be if detected early. Let's start with some acuity problems. The technical term is refractive errors.

Myopia or nearsightedness is caused by the retina being too long or the lens being too thick and curved. It may develop between the ages of 6 and 8 years of age. This physical abnormality causes the light rays to bend or curve too much. The image falls in front of the retina. A myopic child can see well at near distances but cannot focus on far objects. Since the child has no reference of knowing that its vision is incorrect, he or she pays no attention to distant objects. This may cause the child to develop a withdrawn personality because

1. She or he cannot perform well in gross motor play, particularly involving balls
2. Assignments put on a blackboard or materials utilized at a distance cause the child to miss assignments or key factors needed for optimum performance.

Prevention ⇨ Early Detection

1. Take the child for regular periodic eye checks by an optometrist or ophthalmologist from 3 years on.
2. Take the child to a physician, optometrist or ophthalmologist if he/she shows any "developmental signals".
3. Have the child fitted for corrective glasses when necessary.

Results - improved visual acuity for visual stimulus and improved self-esteem.

Hyperopia or farsightedness is more common than myopia and can occur at any age. In this impairment the eye is too short; causing the image to be focused behind the retina. The child sees better at a distance than close up. If the child's eyes are otherwise healthy he/she may be able to use the normal adaptive powers of the lens to see well at close distances without correction. But this can cause fatigue of the eye muscles and headaches. If hyperopia is severe enough, a very young child may cross the eyes in an effort to achieve a sharp image. This could result in crossed eyes or strabismus.

Strabismus is a very serious eye abnormality and results in a severe impairment of vision.

Prevention ⇨ Early Detection

1. Take the child for regular periodic eye checks by an optometrist or ophthalmologist at age 3 and thereafter.
2. Have the child's eyes examined by a physician, optometrist or ophthalmologist if there are any "developmental signals".

3. Have the child fitted for corrective glasses when necessary.

Results - improved vision and aversion of a severe visual impairment.

Astigmatism results from a defect in the curvature of the cornea. This causes a diffusion of light rays on the retina preventing a sharp focus. This type of impairment will effect all distances. If incorrected, a serious visual impairment can occur, bilaterial amblyopia.

Prevention ⇨ Early Detection

1. Take the child for regular eye exams by an optometrist or ophthalmologist at age 3 and thereafter.
2. Have the child's eyes examined by a physician, optometrist, or ophthalmologist if she/he has any of the "developmental signals".
3. Have the child fitted for corrective glasses when necessary.

Results - improved vision and aversion of a serious visual impairment.

Strabismus is sometimes called cross-eyes or wall-eyes. It occurs when both eyes are not straight or properly aligned but are turned in, up, or down. The cause can be a birth injury, heredity, interrupted development of muscle attachments, excessive farsightedness or nearsightedness and infectious diseases. Since the eyes are looking in two different directions, the child's brain receives two visual images that are too different to be fused into a single image. To compensate the child mentally blocks out one image. If this suppression continues during the early years vision can be either partially or completely lost in the weaker eye.

Prevention ⇨ Early Detection

1. The parent should be aware of family history of strabismus.
2. The parent should be aware of any high risk factors.
3. The infant or child should be taken to a physician or ophthalmologist as soon as the condition is noticed.
4. The parent should have a child's eyes examined if any one of the "developmental signals" appear.

5. The child should have regular eye exams by an ophthalmologist or optometrist from age 3 and thereafter.
6. The parent should follow prescribed treatment which may include glasses, eye exercises, patching, medication to allow easier focusing, and/or surgical repair of the eye muscles.

Results - if treated early enough sight will be preserved in the weak eye allowing the child to have binocular vision of normal acuity.

Amblyopia is a serious eye impairment that can lead to permanent reduction of vision if not detected early in life. It is similar in nature to strabismus but more insidious since it is not noticed by an untrained observer. It is caused by one eye having an optical imperfection causing it to turn in or out while the other eye sees straight. The blurred image is unreconcilable with the clear one. The child then blocks out the imperfect image. Consequently the weak eye does not develop vision. If not detected early this can cause a permanent reduction of vision in the weaker eye.

Prevention ⇨ Early Detection

1. The child should have an eye exam at birth which is usually done by the child's physician.
2. The child should have well baby checkups which allow for periodic visual screening.
3. The child should have a preschool screening by age 3 and yearly checkups thereafter by an optometrist or an ophthalmologist.
4. Prescribed treatment should be followed which may include patching, glasses, eye exercises, or surgery.

Retrolental Fibroplasia (RLF), is a disorder in which the retina detaches and a grayish membrane develops behind the lens. This is the result of poisoning from excessive oxygen. This occurs in premature babies that receive too much oxygen for too long a period of time in an incubator. Since the cause of retrolental fibroplasia was found in 1954 the incidence from this disease has decreased from 24% to 8% between 1950 and 1963. Since 1954 oxygen is used in an incubator only when necessary to save the life of a premature infant or neonate with cardiac problems. In the premature infant concentration of oxygen is carefully monitored and ophthalmological examinations are done regularly to detect any changes in the retina. Oxygen is discontinued as soon as possible. Retrolental fibroplasia has developed in some newborns that have not been given oxygen therapy. In these cases causal factors are unknown.

Prevention ⇨ Early Detection

1. The parents should eliminate any high risk factors which might cause prematurity.
2. The infant should have an ophthalmological exam at birth.
3. Parents should be aware of risk factors causing RLF - prolonged incubator placement.

Results - parents awareness of RLF condition allows them to provide optimum environmental stimulation for mental growth.

A Cataract is a clouding of the lens of the eye which shuts out light from the retina. Cataracts are one of the most common causes of vision impairment. Half of all blindness caused by cataracts is the result of a birth defect. Some of the specific defects include: congenital rubella; congenital syphilis; inborn errors of metabolism such as galactosemia, diabetes mellitus, or homocystinuria; chromosome abnormalities, Turner's Syndrome, Patua's Syndrome, or Down's Syndrome; low birth weight of premature infants; genetic-autosomal dominant or recessive trait. Cataracts can appear on one eye or on both. The exact vision impairment depends on the thickness and location of the opacity. Some cataracts consist of: small, tiny flecks on an otherwise clear lens; a complete or partial opacity of the lens; or a radiation from the center of the lens in one or more spokes. The only effective treatment is removal of the lens surgically. Eye glasses, contacts, or intraocular lens can be substituted for the removed lens. These devices allow light to fall on the retina as would the normal lens of the eye.

In an infant or young child it is important that a cataract be detected early so that if surgery is required it can be done early enough to avoid the cataract from stopping the development of vision. The retina must be light stimulated before visual pathways can be developed. Restoration of normal vision depends on occurrence of other eye abnormalities as well as early detection.

Prevention ⇨ Early Detection

1. The infant should have an ocular exam at birth.
2. Parents should recognize the risk factors in their child.
3. Parents should immediately contact the physician if they notice a cloudy appearance to the eye of the child.
4. Parents should have child's eyes examined if she/he shows any "developmental signals".
5. The child should have vision screening at regular medical checkups during the first 2 years of life.
6. The child should have preschool vision screening by age 3 and yearly checkups thereafter by an optometrist or ophthalmologist.
8. If surgery is indicated it should be done as soon as possible so that maturation of the retina can continue.

Results - if detected early, the greatest possible preservation of sight.

Retinoblastoma is an inherited neoplasm (tumor) of the eye. It is particularly insidious as it is the only known malignant tumor to be inherited in a autosomal dominant pattern. Although it is passed on by a dominant gene, not everyone with a dominant gene for this disorder will develop retinoblastoma. The only treatment is to remove the affected eye. The malignancy can spread to the brain or elsewhere by way of the optic nerve. Of the children with retinoblastoma only 1/2 survive.

Prevention ⇨ Early Detection

1. Parent's awareness of family history of neoplasms.
2. Genetic counseling for the parents.
3. A newborn eye examination.
4. Medical checkups for baby during the first 2 years of life.
5. Take baby to a physician if any "developmental signals" appear.

Results - the parent may not only save the child's sight but its life.

LEARNING DISABILITIES

(Duplicate dittos 138 and 139, one for each student in the class. Pass them out as they come into the classroom.)

QUESTION: Does anyone know what a learning disability is?

DISCUSSION: That is a fairly good definition and description. A learning disability is an impairment in our ability to

- collect information.
- sort information.
- store information.
- express information.

It could effect all avenues of learning: hearing, seeing, feeling, smelling, talking, reading, writing, and oh yes, arithmetic! These disabilities are caused by a dysfunction in the central nervous system that causes information to be intercepted or distorted. It can occur in the neuron pathways, in the mid brain, or in very small specific areas of the cortex. In fact, a central hearing loss is a type of learning disability.

Let's do some brainstorming. *(Put 4 types of impairments on the blackboard - collecting, sorting, storing, expressing.)* Now let's take one of the senses and think of the things that would go wrong in each of these areas. Let's try vision!

(Continue on and get some ideas of a disability in vision - collecting information; vision sorting information; and vision expression. Use the following chart as a guide.)

Some of the Processing Problems of Learning For Each Sense.

	EXAMPLES OF DISABILITY IN			
	Collecting	Processing	Storing	Expression
HEARING	1. Words have no meaning. 2. Sounds have no meaning. 3. Sentences have no meaning. 4. Tone deafness. 5. No rhythm.	1. Confuses speech sounds that sound alike. 2. Doesn't discriminate differences between words that sound alike. 3. Confuses environmental sounds.	1. Doesn't remember speech over long or short period of time. 2. Doesn't remember number sequence after hearing it. 3. Doesn't remember sequence of sound.	1. Difficulty in expressing him or herself through speech. 2. Can't say words. 3. Can't say some sounds.
VISION	1. Judges depth, distance or size incorrectly. 2. Doesn't perceive differences in colors.	1. Can't differentiate shapes, letters, sizes. 2. Can't class similar objects & can't sort colors or letters.	1. Can't remember sequence of written letters or numbers. 2. Can't remember details of a picture.	1. Can't read orally. 2. Can't name objects, colors, etc.
TOUCH or MOTOR MOVEMENT	1. Doesn't differentiate different textures or tastes. 2. Doesn't perceive tactile information coming from one body area.	1. Would not be able to differentiate objects or textures by touch only. 2. Poor body image problem in discriminating sensation as hot & cold.	1. Would not remember directions. 2. Could not remember how to jump, throw a ball, roll, etc. 3. Would not remember tactile sensations as hot or cold.	1. Coordination problems. 2. Problems in playing motor games such as ball. 3. Would not be able to write. 4. Would not be able to type.
SMELL	1. Doesn't respond to odors.	1. Doesn't differentiate a noxious odor from a pleasant one. 2. Doesn't associate an odor with object it comes from.	1. Doesn't remember where he/she smelled a particular odor.	

That was excellent thinking!! From our little discussion you have probably gathered that it could be a very complex problem and easily confused with a sensory impairment or mental retardation. Let's talk about some things that learning disabilities are not.

1. It is not an impairment of a sense organ such as eyes or ears. These senses receive accurate impressions but the brain cannot translate them.
2. It is not an emotional problem. Although learning disabilities have the potential of creating many of them.
3. It is not mental retardation. Learning disabled children do well in some areas and poorly in others. A retarded child does not have this unevenness. He or she is consistently slow.
4. It is not related to cultural deprivation. There seem to be the same incidence of children from all types of families and environments.

QUESTION: How do you think a learning disability is diagnosed?

DISCUSSION: Nope! You guys aren't even close. Determining that a child is learning disabled relies on the occurrence and frequency of risks and developmental signals. There are no physical signs of illness or malfunction. The brain shows no physical impairments. The only indications of an impairment are signs and symptoms that have been related to other types of minimal brain damage.

Let's look at your risk tree. This time you have a 2nd tree that is completed. There are a lot of risks listed! Let's take turns reading off these high risk factors.

(Duplicate and pass out ditto 140. You will also need the Developmental Chart passed out previously, see page 416.)

OK! Now you know what half of a diagnosis is made from. Let's look at the considerations from the other half. You will need the "Developmental Signals" sheet passed out to you on entering the room, and a "Developmental Chart" that I'm passing out now. Make 4 groups of 4 each. As a group, review the "Developmental Chart". Then take the "Developmental Signals" sheet and check off those signals that you might see in an infant or toddler. We will discuss your results when you are finished.

(After about 15 min. lead discussion in comparing the signals the students thought would appear in a young infant or toddler.)

Excellent cooperation and thinking.

(Pass out ditto 141 and discuss.)

If your child should develop a learning disability there are some things you can do as a parent.

Action #1. Make a complete history of the child. Include details about pregnancy, birth, diseases, accidents, behavior problems, etc. These are important in determining a diagnosis.

Action #2. Have regular follow-up visits with a physician.

Action #3. Seek counseling for child and/or parents. Any child is taxing but a hyperactive, over-approacher is particularly so.

Action #4. Contact local agency or group for learning disabled children.

Action #5. Understand that the child's behavior and problems are upsetting and disappointing to him also. No one wants to fail, be disliked, or be constantly in trouble.

Action #6. Provide a structured home environment. Routine lessens confusion. Set up a schedule for daily activities such as meals, play, T.V. watching, bedtime, school, etc., and stick to it!!

Action #7. Keep child's room uncluttered and simple. Have a place where he/she can store things out of sight.

Action #8. Let the child know what is expected of her/him.

Action #9. Cope with emotional swings by shifting attention. Use short-and-to-the-point instructions.

Action #10. Experiment with a child's diet. Avoid any and every food your child eats more than once a week. When child improves, add the foods back to the diet one at a time, to see which ones disagree and which ones do not.

Action #11. Join a parents group such as the local chapter of Association for Children With Learning Disabilities.

Action #12. Learn all you can about learning disabilities and hyperactivity.

Action #13. Give the child lots of love, affection and praise. We all need rewards. They make us feel good about ourselves.

☐ **Classroom Experience Options**

1. General

   a. Make a booklet of dittos and handouts of this chapter. Make a ditto of large chapter illustration for the cover of the booklet.

   b. Make a large risk tree for classroom display. Include all possible risks.

   c. Have each student make a list of hereditary risks in their family. Have them start their own risk tree.

2. Hearing

   a. Show one of the following films:

      1. Title: Hear Better: Healthy Ears HSC-1004
         Time: 12 min. color film
         Content: Shows the importance of hearing in daily life, the structure of the ear, and procedures for proper ear care. Uses scenes in which sound is suddenly omitted to illustrate the importance of hearing in sensing danger, identifying places and objects, communicating, and being entertained. Demonstrates the anatomy of the ear and stresses the vulnerability of the hearing organs.
         Available from: ⊕ 18 Rental: $8.25

      2. Title: We Tiptoed Around Whispering
         Time: 30 min. color film
         Content: A combined dramatization and documentary on what parents of deaf children experience from the birth of their child until the deafness is diagnosed, as well as the kinds of advice that may follow. Available with or without captions. 1972.
         Available from: ⊕ 28 Rental: $15.00

      3. Title: Silent World, Muffled World
         Time: 28 min. color film
         Content: Discusses the difficulties of speech, education, and normal living throughout history for the deaf. Animation explains the physiology of the ear, the mechanics of the hearing process, and the causes of hearing impairment. Shows the progress being made in the techniques of corrective ear surgery and in the methods of education and rehabilitation of deaf persons. 1965.
         Available from: ⊕ 28 Rental: $15.00

      4. Title: Why Wait?
         Time: 20 min. color film
         Content: Emphasizes the importance of discovering hearing defects in preschool children. Lectures, using charts and diagrams, points out specific hearing difficulties of children. Special methods and techniques for giving audiometer tests to preschool children are demonstrated. The necessity for special instruction for children with severe hearing defects is indicated.
         Available from: ⊕ 28 Rental: $8.50

      5. Title: Opportunity to Hear
         Time: 28 min. black & white film
         Content: Discusses the problems of hearing loss in children; mentions screening, follow-up and rehabilitation. Emphasizes the consequences of undetected loss, how losses are detected, and the extent to which various types of losses will respond to appropriate restorative procedures.
         Available from: ⊕ 28 Rental $10.70

      6. Title: Ears and Hearing A-882
         Time: 22 min. color film
         Content: This film describes the structure and function of the human ear. By means of illustrations and live action photography it demonstrates the process by which sound waves from the environment are converted and perceived as sound. Also explains two causes of deafness and ways in which these malfunctions can be corrected.
         Available from: ⊕ 16

      7. Title: Auditory Screening for Infants
         Time: 15 min. colored film
         Content: Designed to stimulate interest in training public health nurses to administer this auditory screening test to 8-9 month old infants. Shows test performed on four babies.
         Available from: ⊕ 28 Rental: $8.50

   b. Pass out and discuss pamphlets.

      1. Your Child's Hearing
         Available from: ⬡ 4

2. Noise and You
Available from: ⬡ 4

c. Play the following record.

Getting Through
Available from: Local Zenith Hearing Aid Dealer

d. Have an audiologist come and speak to the class on infant play audiometry.

e. Have an otolaryngologist or otologist come speak to the class on the importance of early detection.

f. Have the school's speech clinician bring in a portable audiometer and discuss hearing screening.

g. Have the students find agencies and/or organizations listed in the telephone book that could offer assistance to parents of a hearing impaired child.

3. Vision

a. Show one of the following films:

1. Title: The Miracle of Vision
Time: 15 min. color film
Content: Complete film with record and script of narration excerpts, this is an entertaining excursion into the world of vision and the mechanics of the eye. Includes eye anatomy, sight development, vision problems and other interesting topics.
Available from: ⊕ 36

2. Title: Jamie
Time: 6:38 min. color film-16mm sound
Content: A day in the life of Jamie Weaver, Poster Child for 1975. Jamie was born without eyes, but her enthusiasm, talent and sense of humor make this film unforgettable.
Available from: ⊕ 15

3. Title: Johnny's New World.
Time: 16 min. color film
Content: Cleared for television. Need for early detection and treatment of children's eye problems.
Available from: ⊕ 33

4. Title: The Lazy Eye
Time: 13½ min. color film
Content: New documentary emphasizing the importance of early eye care for children. Mothers tell how preschool vision screening found eye disorders in their young.
Available from: ⊕ 33

5. Title: The Visually-Handicapped Child, The Blind NET-1973
Time: 29 min. black & white film
Content: Discusses the special problems encountered by the child who is blind, and explains the care and understanding needed in order to enable the blind child to develop and to participate in the relationships of life. Illustrates the limitations imposed by blindness, and describes materials and techniques used in the education of the blind. Uses filmed sequences to show activities in the home, the public school, and special class. Features Mrs. Ferne K. Root of Syracuse University. Exceptional Child Series.
Available from: ⊕ 18 Rental: $9.50

6. Title: The Visually-Handicapped Child, The Partially Sighted NET-1972
Time: 29 min. black & white film
Content: Discusses the special problems of the child with defective vision, pointing out the many degrees of partial-sightedness and the implications of each. Stresses the role of the home, school, and community in providing proper development for these children. Uses filmed sequences to show characteristics of the partially seeing child and materials and methods used in their training program. Features Mrs. Ferne K. Root of Syracuse University. Exceptional Child Series.
Avaiable from: ⊕ 18 Rental: $9.50

7. Title: World Outside, The P-85
Time: 30 min. black & white film
Content: Excerpts shown from therapy sessions with two blind children. Both children are one of sets of twins born prematurely, and both are blind as a result of retrolental fibroplasia. Illustrates the child's ability to quickly work through a traumatic experience in her play; also, recapitulates the early theme in her treatment of restoration from

sickness and incompleteness to wholeness and health. Points out the need for a therapist who will arrange the therapeutic program to meet the changing needs of his patients.
Available from: ⊛ 16

8. Title: The Eyes Have It!
Time: 8 min. color film
Content: Marionettes demonstrate eye safety at home and school.
Available from: ⊛ 33

9. Title: Sight for a Lifetime
Time: 20 min. color film
Content: A comprehensive dramatization of the total prevention-of-blindness program. Focuses on the developments in research, treatment, and education to prevent eye problems. Discusses the role of legislators in restricting harmful objects such as firecrackers, the role of industry leaders in providing protective eye gear, and efforts to detect glaucoma, cataracts, etc. (Prevent Blindness) 1963.
Available from: ⊛ 15 Rental: $5.00

10. Title: Crossroads at 4
Time: 13 min. color film
Content: Dramatized discovery of a young boy's unrecognized amblyopia.
Available from: ⊛ 33

b. Pass out and discuss the following pamphlets:

1. Do You Know These Facts About Vision and School Achievement.
Available from: ☐ 1

2. Check Your Child's Vision
Available from: ☐ 1

3. Crossed Eyes: A Needless Handicap G106
Available from: ⬡ 24

4. Facts About Vision
Available from: ☐ 1

5. First Aid for Eye Emergencies G117
Available from: ⬡ 24

6. Home Eye Test for Preschoolers HET
Available from: ⬡ 24

7. Signs of Possible Eye Trouble in Children G102
Available from: ⬡ 24

8. Your Baby's Eyes
Available from: ☐ 1

9. Your Child's Sight-How You Can Help G108
Available from: ⬡ 24

c. Have an ophthalmologist or optometrist come to the class and speak on the importance of preschool eye screening and on how they test a child's eyes.

d. Have the school nurse come and speak to the class about screening tests used in the schools and their importance.

e. Have students find agencies in the telephone book that offer services to visually impaired children.

f. Have a teacher of the visually impaired come speak to the class.

g. Have students pair off. One student is blindfolded and the other is not. The blindfolded student is led around the building by the seeing student. Afterwards discuss their experiences.

4. Learning Disabilities

a. Show one of the following films:

1. Title: Anybody's Child Part I & II
Time: 24 min. color film
Content: Presents an overview of learning disabilities, causes, manifestations and emotional impact on the child. Explains how problems in processing perceptual information effects language abilities, intelligence, learning to read and write. Discusses the problems in establishing early identification and the occurrences of accompanying behavioral problems.
Available from: ⊛ 28 Rental: $45.00

2. Title: In A Class...All By Himself
Time: 50 min. color film
Content: NBC News feature focusing on hyperactive children. Examines the treatment of hyperkinetic children with stimulant medication and with education therapy and

special schools. Discusses links with alcoholism, juvenile delinquency, adult criminal behavior and failure in general.
Available from: ⊛ 10 Rental: $36.00

b. Pass out and discuss the following pamphlet:

Bibliography on the Hyperkinetic Behavior Syndrome
Available from: ⬡ 2

c. Have a parent of a child with learning disabilities come speak to the class.

d. Have a learning disabilities teacher come speak to the class.

Outside Classroom Experience Options

1. Go to an audiologist's office and observe how the testing is done.
2. Have a student tag along with an otolaryngologist or otologist during office hours. Then have the student share his or her experiences with the class.
3. Have students visit a class for hearing and/or visually impaired children.
4. Have students visit a local preschool for hearing impaired.
5. Visit the state residential schools for the blind and/or deaf.
6. Take a tour of an optometrist's office.
7. Go visit a hearing aid dealer.
8. Have a student spend a day with an ophthalmologist. The student should share her or his experiences with the class.
9. Visit a speech and hearing clinic.
10. Have students attend a meeting of the local organization for learning disabled.
11. Have students visit a preemie nursery.

Action Checklist

Pass out an Action Checklist to each student prepared from dittos 142 & 143. Use it as a summary of the role of the parents as "Psychologists" in the prevention of mental retardation in the growing child. Go over each point to be sure it was covered in the classroom presentation.

PSYCHOLOGIST

As a parent of a growing child I will as Psychologist:

____ Identify the risks that make my infant or child at risk for a hearing, vision, or learning disability.

____ Become aware of normal growth and development by reading and talking to professionals.

____ Observe my high risk infant for deviations in development.

____ Discuss any developmental deviations with a physician.

____ Take my child for regular physical checkups.

____ Take my infant if he/she is at risk of a hearing loss, for regular screening tests the first 2 years of his/her life.

____ Take my child to a physician if
... he/she complains of an earache.
... there is wetness or pus coming from the ear canal.
... he/she has an unusual amount of colds.
... he/she is subject to allergies.
... he/she complains of ringing of the ears.
... he/she complains of blurriness.
... a haziness develops over his/her eyes.
... he/she complains of persistent headaches.
... his/her eyes appear crossed.

____ Watch for abnormal hearing behaviors after my child has
... taken an ototoxic drug.
... had measles, mumps, meningitis, or encephalitis.
... had a blow to the head.

____ Take my child to a physician, optometrist or ophthalmologist if he/she shows any developmental signals of a vision impairment.

____ Take my infant, if he/she is at risk for a hearing loss, for a diagnostic hearing test if: the infant shows any abnormal hearing behaviors; the infant fails two screening tests; or if I have any reservations about my infant's ability to hear.

____ Take my preschooler to have her/his eyes tested by the age of 3½.

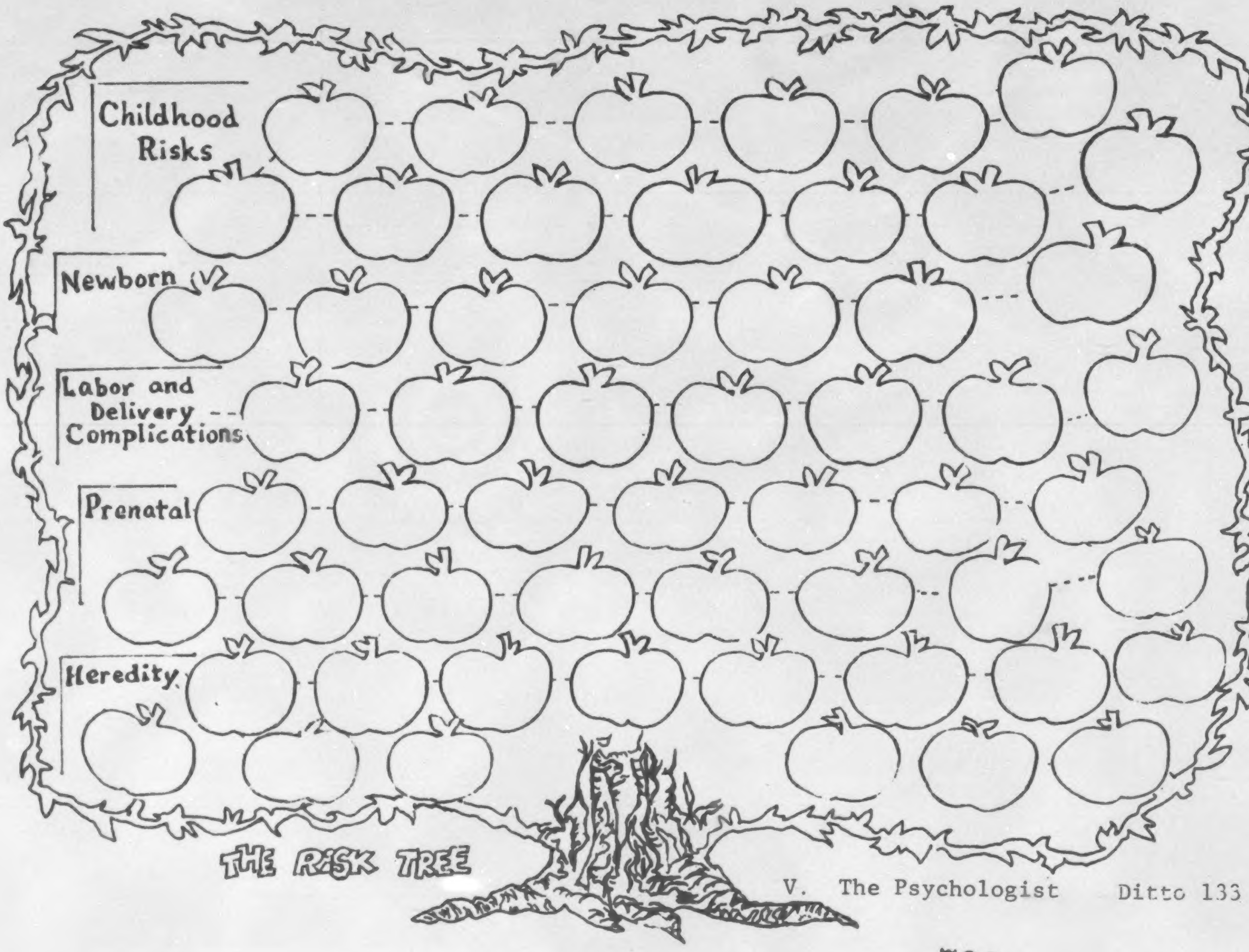
____ Consider using an allergy elimination diet if my child is learning disabled.

____ Discuss with our physician the use of medication if my child is hyperactive.

____ Discuss with our physician the possibility of an allergy, nutritional deficiency, or metabolic disorder being a contributing factor of my child's learning disability.

Post Test

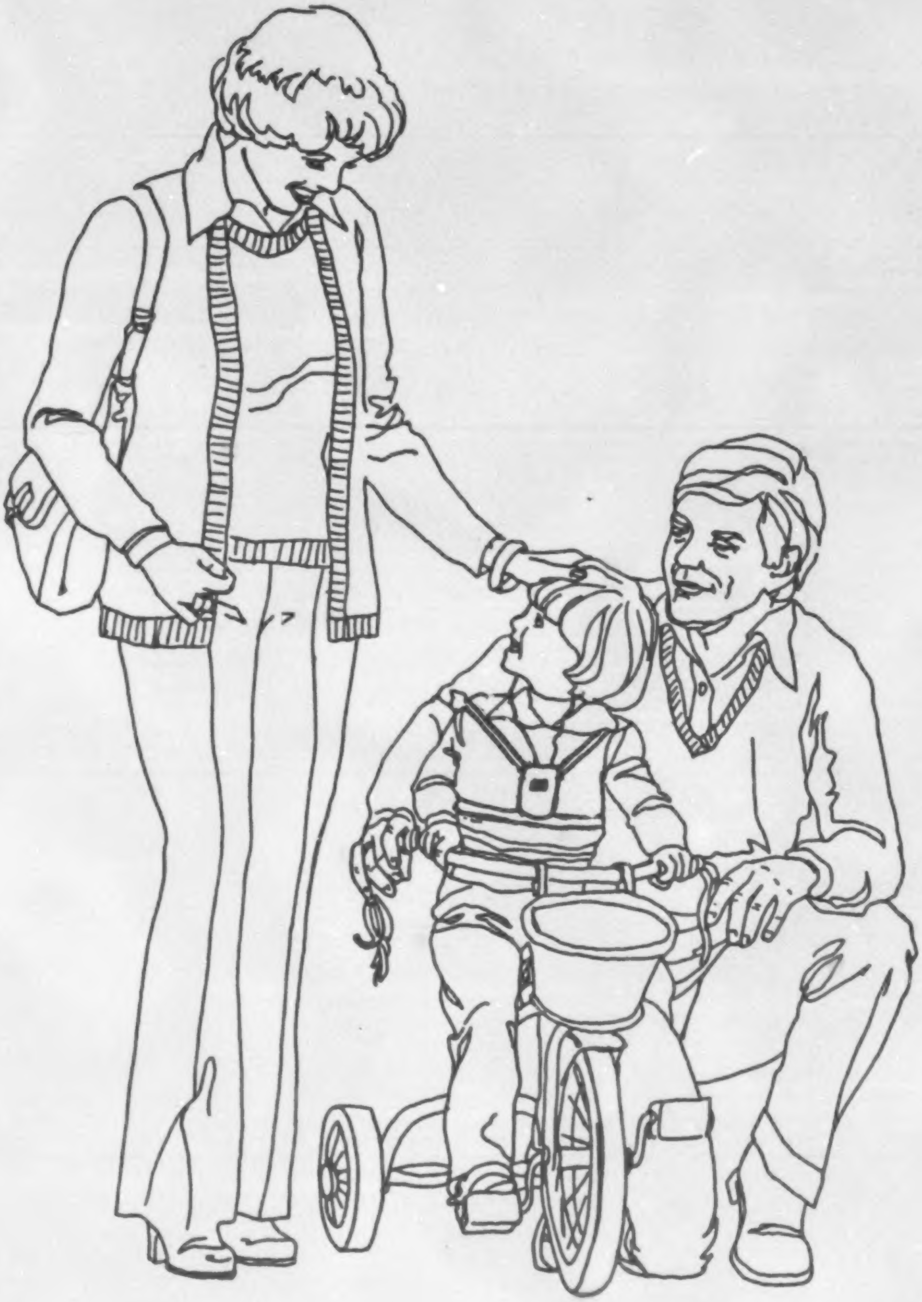
Use the same test as for the pretest. Have the students take it in class or as homework. Let them compare their gains.


Childhood Risks
Newborn
Labor and Delivery Complications
Prenatal
Heredity
THE RISK TREE

V. The Psychologist Ditto 133

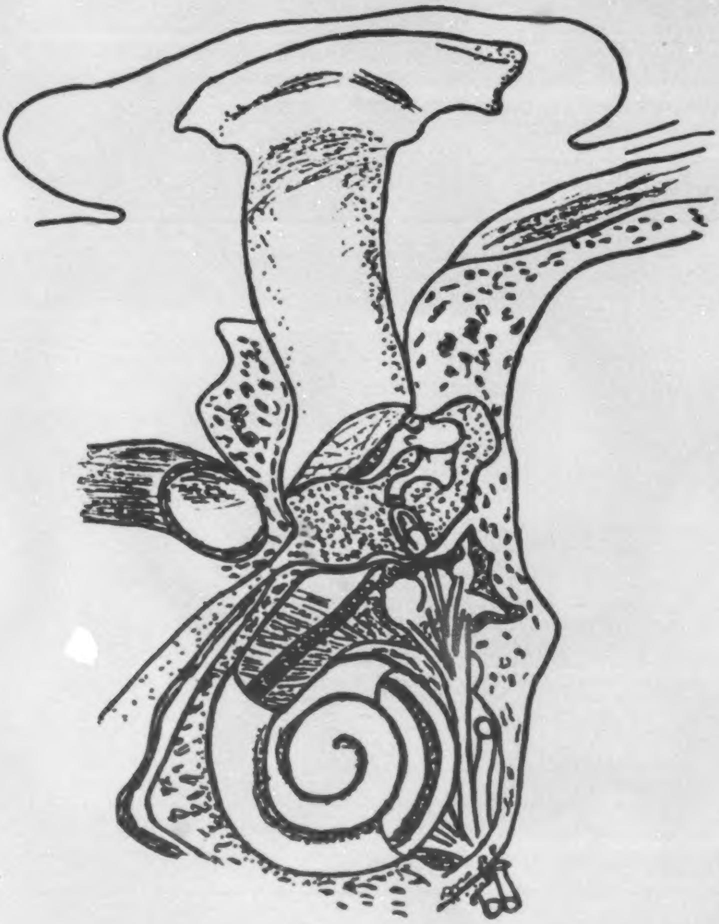
V. The Psychologist Transparency 8

Hearing - Some Facts



V. The Psychologist Transparency 9

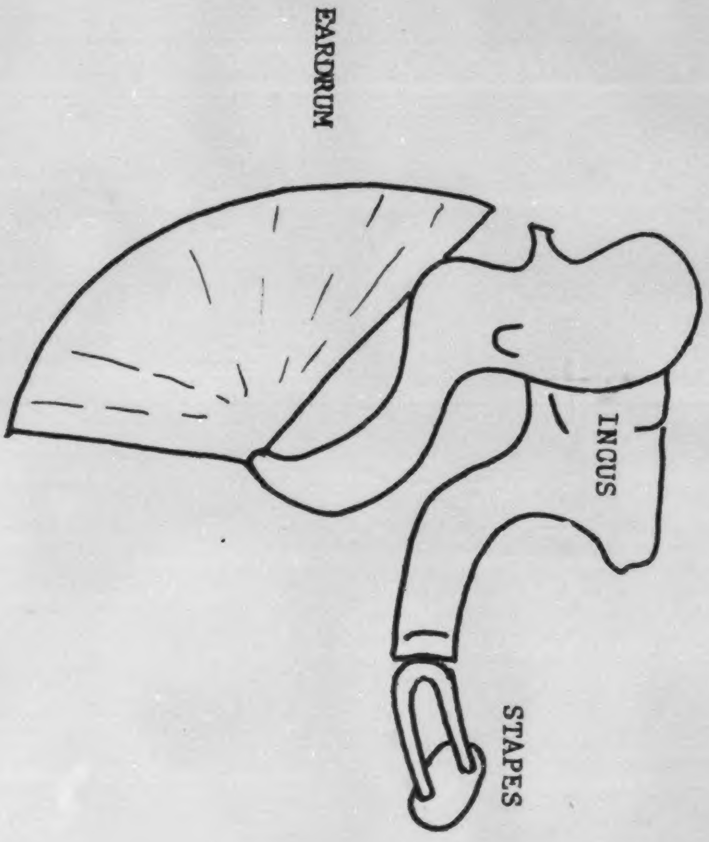
The Ear



V. The Psychologist

Transparency 10

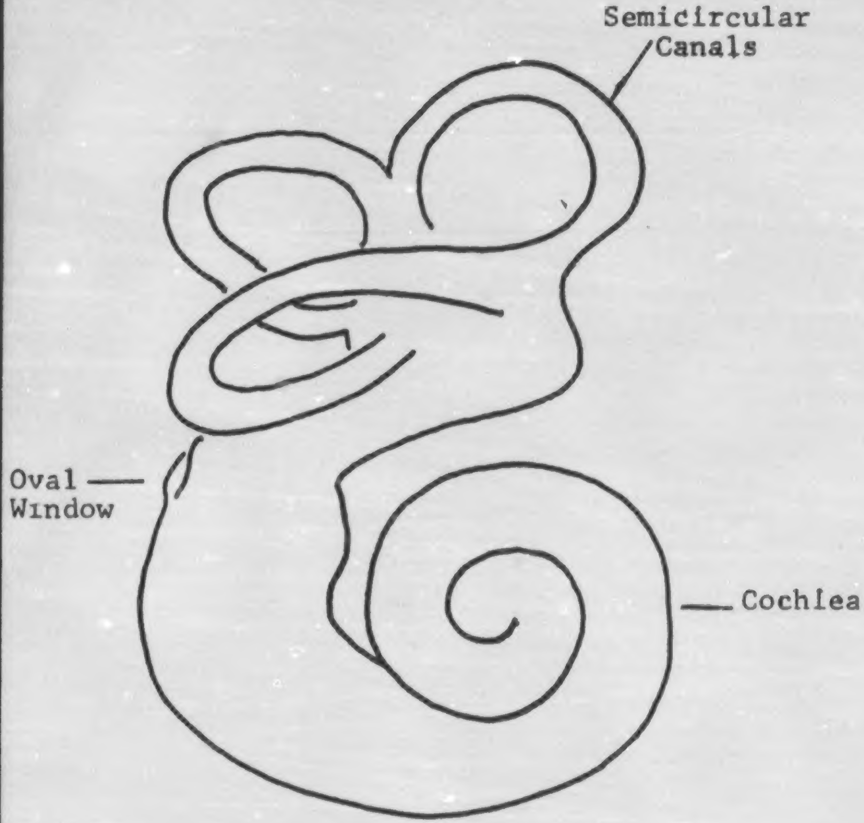
The Middle Ear


EARDRUM
INCUS
STAPES

V. The Psychologist

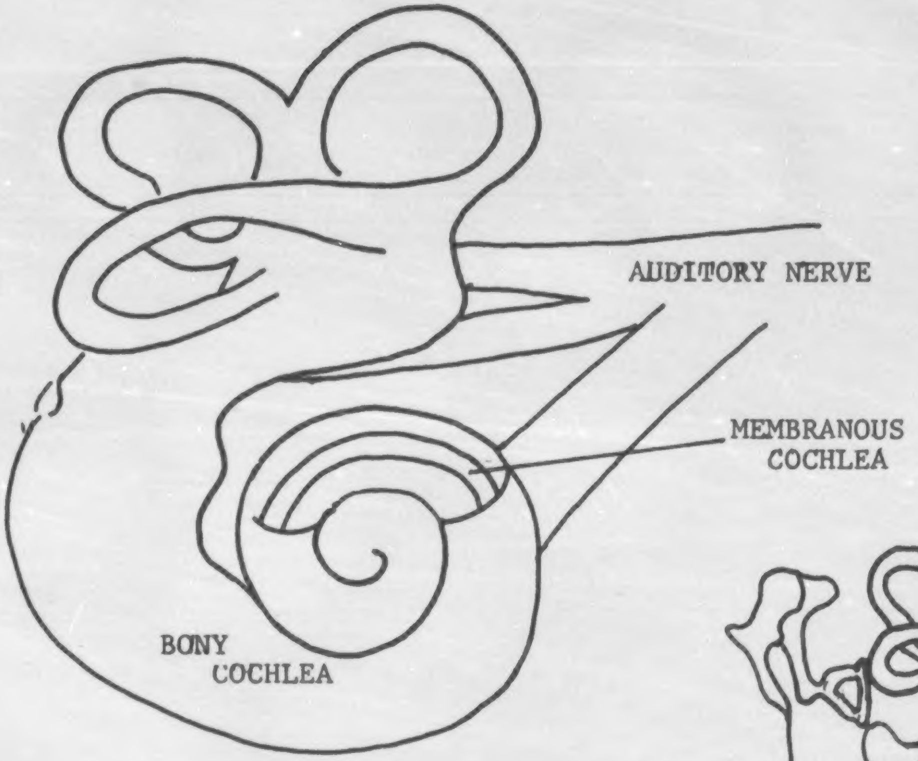
Transparency 11

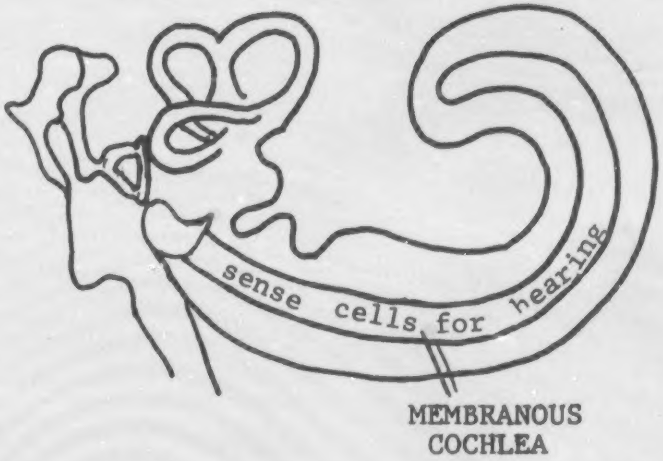
The Inner Ear


Semicircular Canals
Oval Window
Cochlea

Transparency 12

The Cochlea

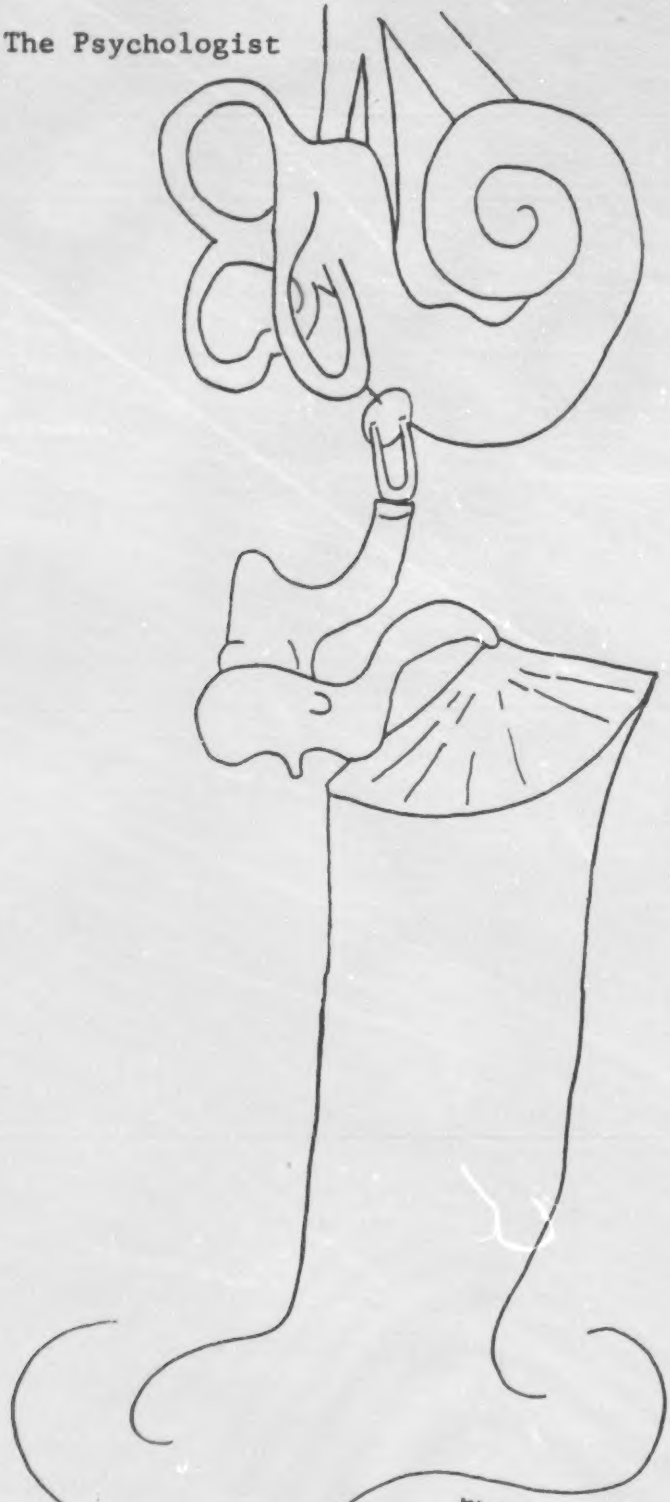

AUDITORY NERVE
MEMBRANOUS COCHLEA
BONY COCHLEA


sense cells for hearing
MEMBRANOUS COCHLEA

V. The Psychologist

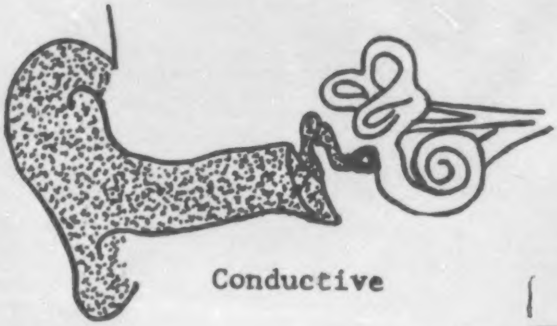
Transparency 13

How The Ear Conducts Sound

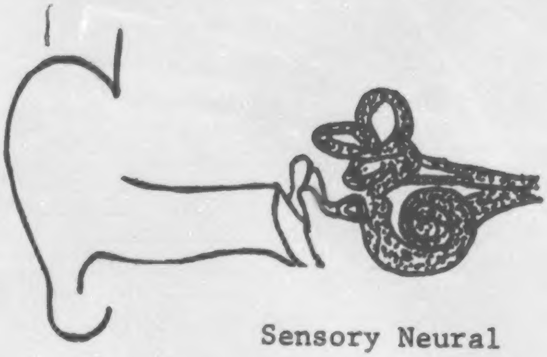


Transparency 14

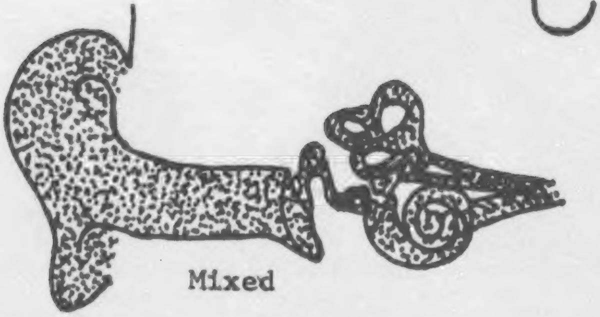
Hearing Losses



Conductive



Sensory Neural

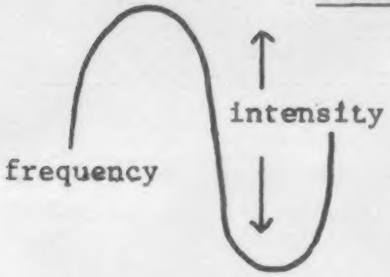


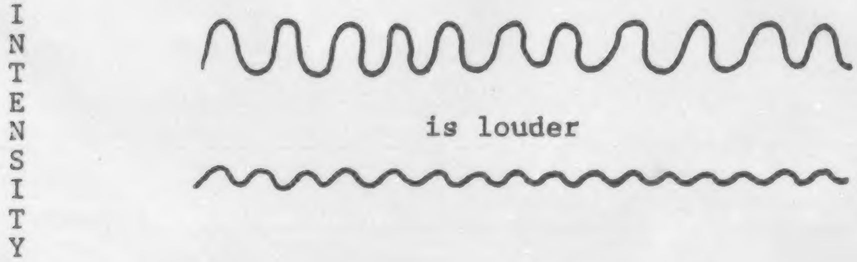
Mixed

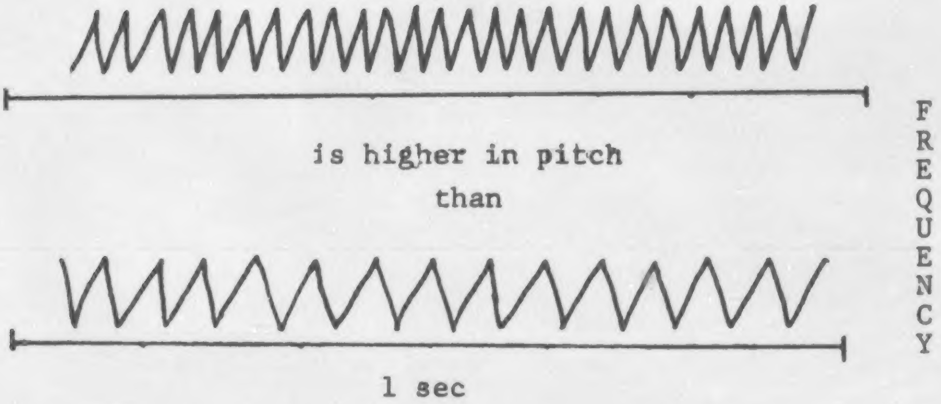
Central

V. The Psychologist

Transparency 15
Characteristics of Sound


intensity
frequency


INTENSITY
is louder


is higher in pitch
than
1 sec
FREQUENCY

Ditto 134

Actions A Parent Needs To Take If Their Infant Is At High Risk Of A Hearing Impairment

1. Watch for any "developmental signals" that are cues of abnormal hearing behavior.

2. Have the child's hearing screened regularly during the first 2 years of life. A gross screening test can be done by the child's physician during well baby checkups. This may appear to be over-cautious, but an infant's hearing is difficult to evaluate; and a loss may not show itself until a child is a year or two old. This is particularly true in hereditary impairments.

3. Make certain a child gets a diagnostic hearing test by an otolaryngologist, an otologist, or an audiologist if

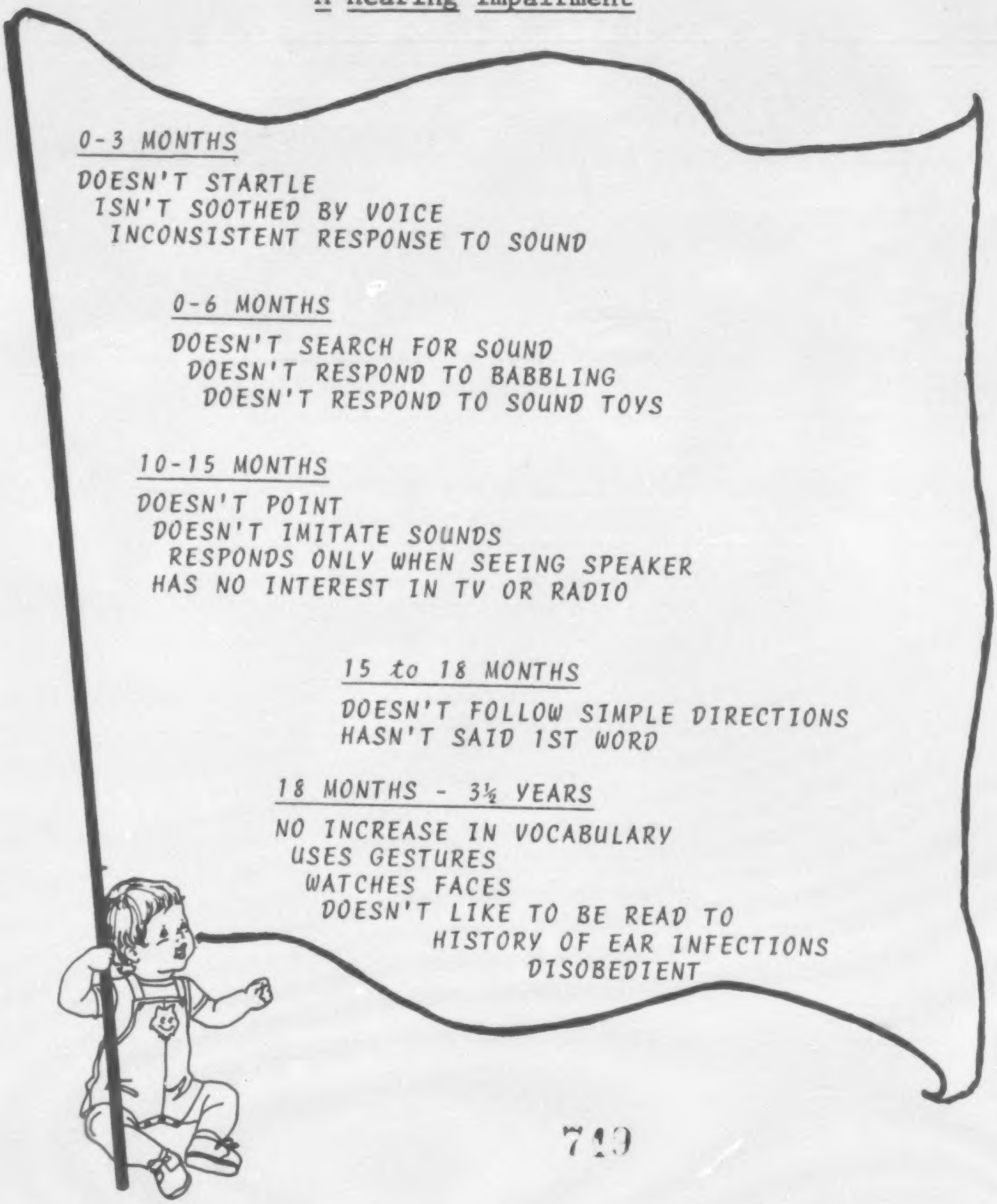
    a. you observe any abnormal hearing behaviors.
    b. the baby responds unsatisfactorily on two screening tests.

4. Have a diagnostic hearing test if there are any doubts about the baby's hearing ability. It is better to be sure than sorry.

V. The Psychologist

Ditto 135

Developmental Signals of A Hearing Impairment



0-3 MONTHS

DOESN'T STARTLE
ISN'T SOOTHED BY VOICE
INCONSISTENT RESPONSE TO SOUND

0-6 MONTHS

DOESN'T SEARCH FOR SOUND
DOESN'T RESPOND TO BABBLING
DOESN'T RESPOND TO SOUND TOYS

10-15 MONTHS

DOESN'T POINT
DOESN'T IMITATE SOUNDS
RESPONDS ONLY WHEN SEEING SPEAKER
HAS NO INTEREST IN TV OR RADIO

15 to 18 MONTHS

DOESN'T FOLLOW SIMPLE DIRECTIONS
HASN'T SAID 1ST WORD

18 MONTHS - 3½ YEARS

NO INCREASE IN VOCABULARY
USES GESTURES
WATCHES FACES
DOESN'T LIKE TO BE READ TO
HISTORY OF EAR INFECTIONS
DISOBEDIENT

V. The Psychologist

Ditto 136

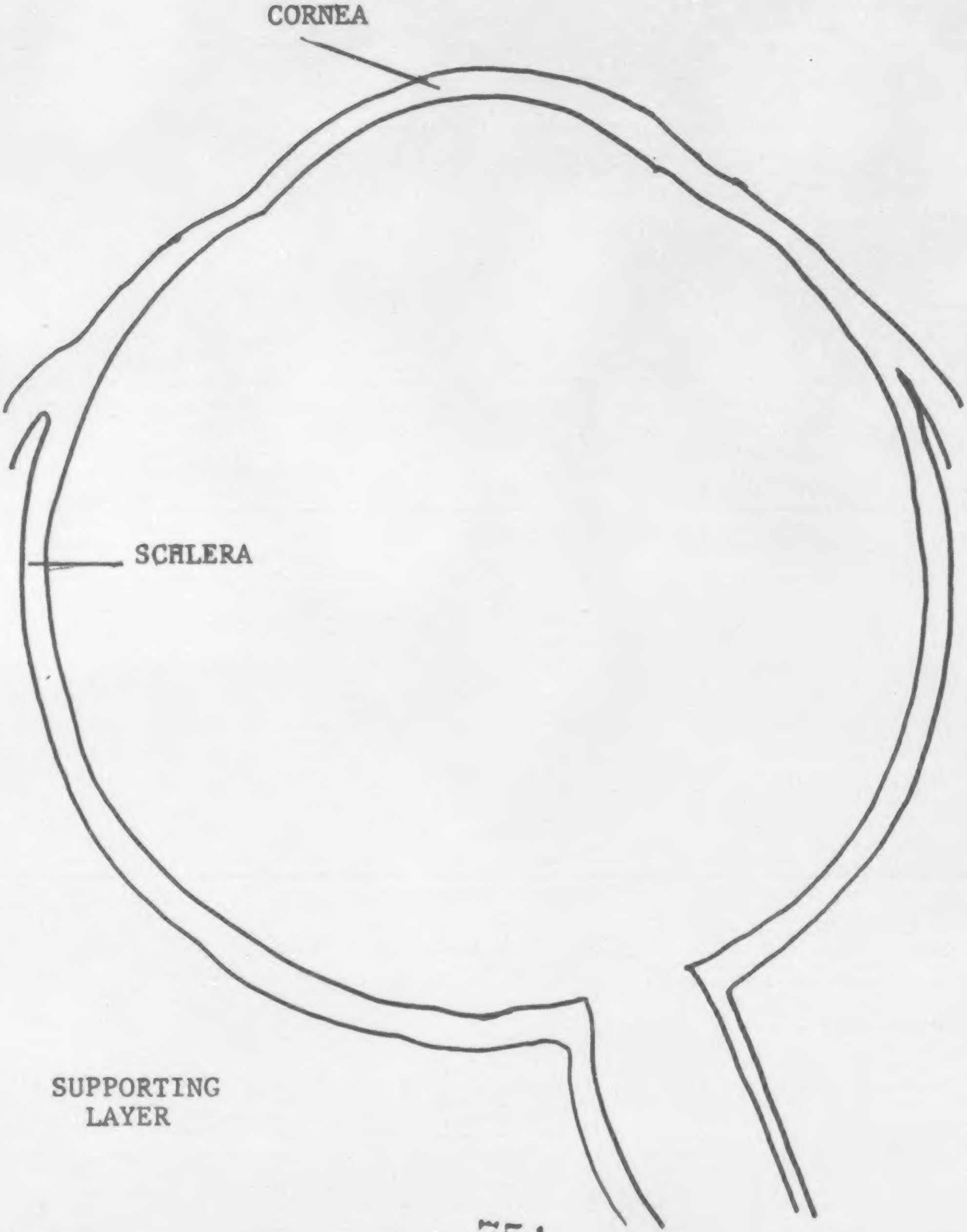
Prevention → Early Detection

1. Take the child to a physician at any complaint of an earache or if there is wetness or puss coming from the ear canal. Early medical treatment could prevent a hearing loss.
2. Take the child to a physician if: the child develops an unusual amount of colds; if she/he seems to be having an ongoing cold; or is subject to allergies. Early detection of a middle ear infection could save the child discomfort and prevent a hearing loss.
3. Watch for any abnormal hearing behaviors after a child has had meningitis, encephalitis, measles, mumps, or roseola.
4. Watch for any abnormal hearing behavior after a child has taken any ototoxic drugs. Particularly the mycin drug group.
5. If the child complains of ringing or roaring in the ears when taking a mycin drug, call the doctor. This may be a signal that the drug has reached ototoxic proportions in the blood stream.
6. Watch for any abnormal hearing behaviors after a child has had an injury or blow to the head. If the child complains of aching and/or a roaring or ringing of the ears, call the doctor immediately.

V. The Psychologist Overlay
Transparency 16

The Eye

1st Layer

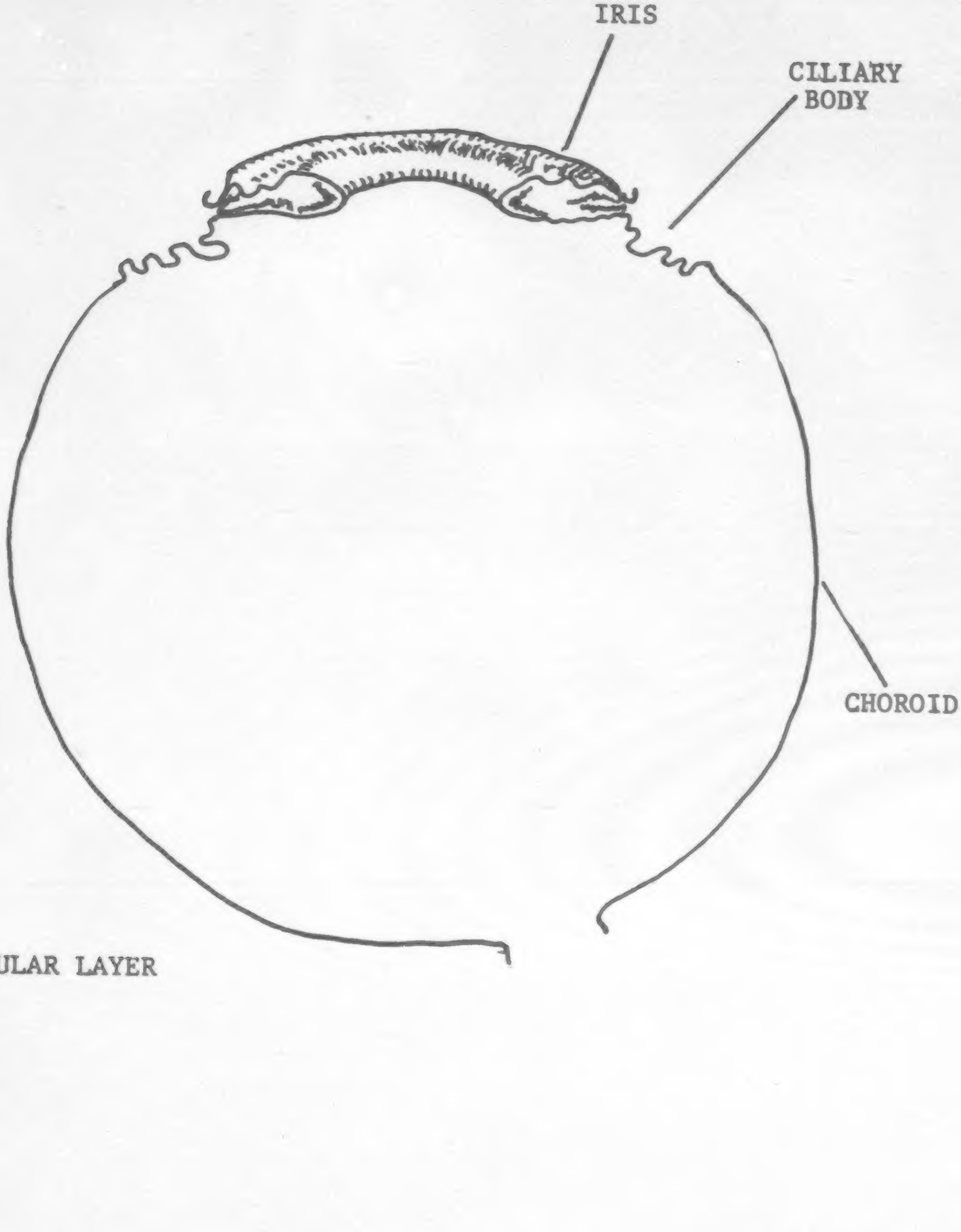

CORNEA
SCHLERA

SUPPORTING
LAYER

Overlay
Transparency 17

The Eye

2nd Layer


IRIS
CILIARY BODY
CHOROID

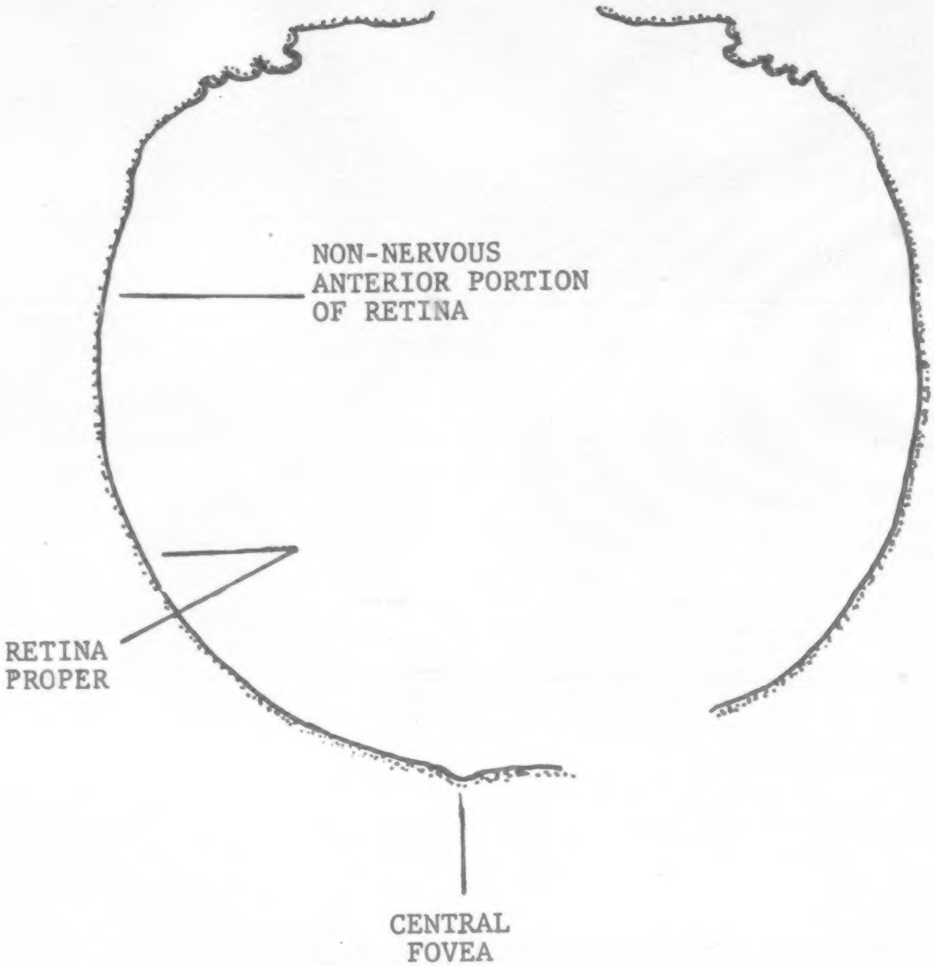
VASCULAR LAYER

V. The Psychologist

Overlay
Transparency 18

The Eye

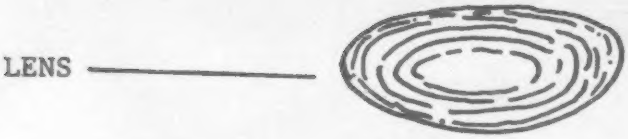
3rd Layer


NON-NERVOUS
ANTERIOR PORTION
OF RETINA
RETINA
PROPER
CENTRAL
FOVEA

RETINAL
LAYER

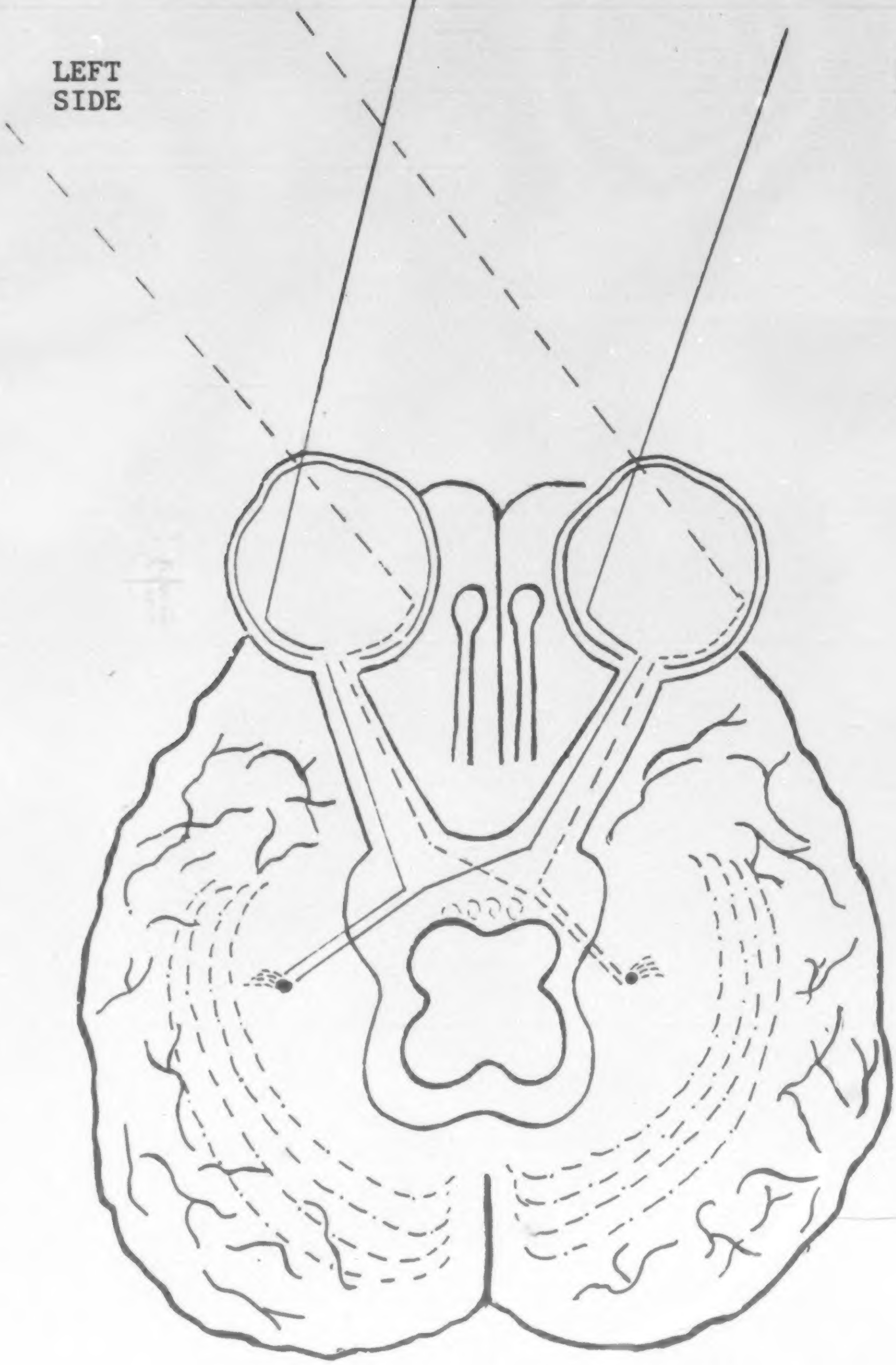
Overlay
Transparency 19

The Eye
Complete


LENS
VITREOUS BODY

V. The Psychologist Transparency 20

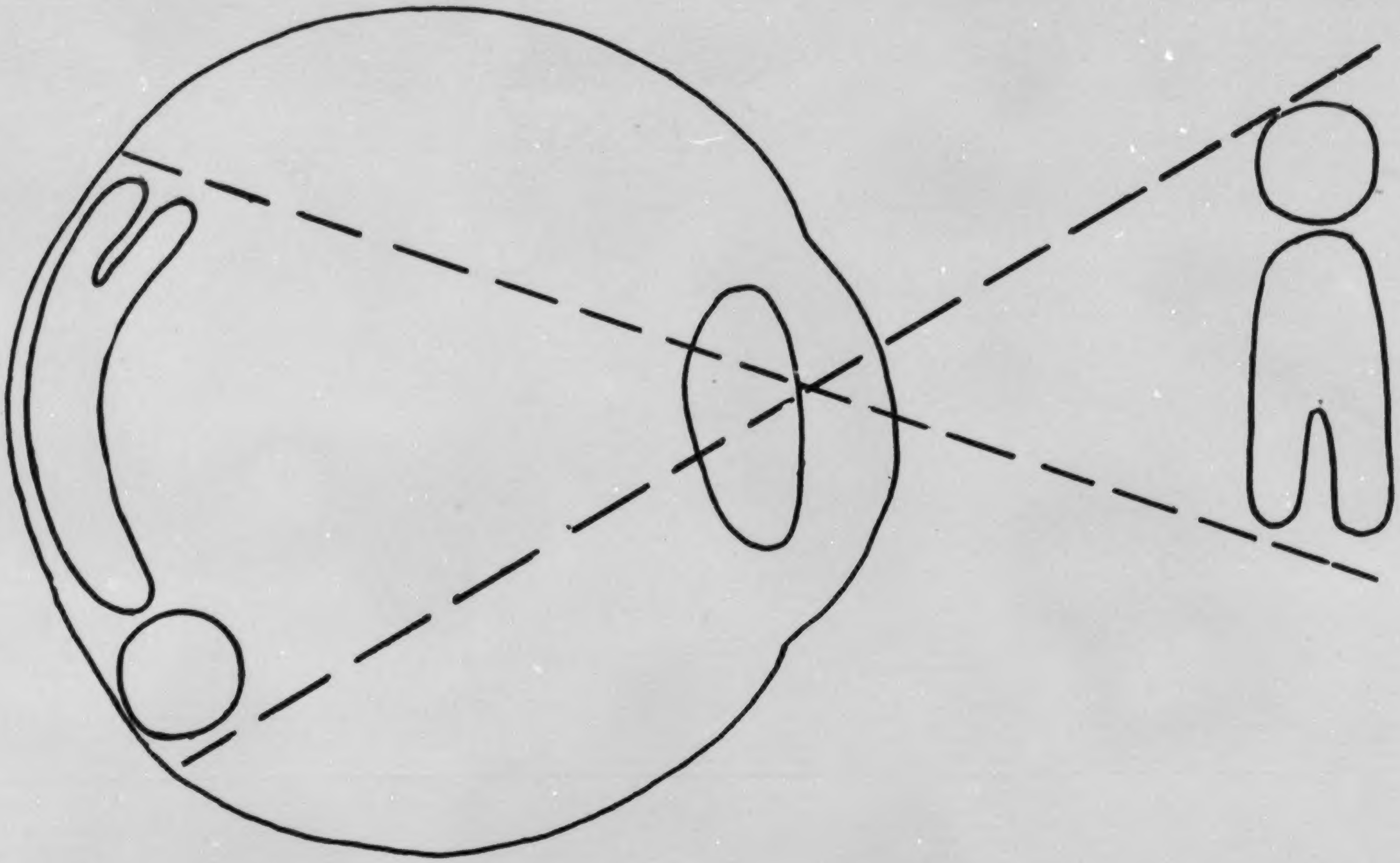
The Eye, Optic Nerve, and Visual Cortex


LEFT SIDE
RIGHT SIDE

Transparency 21

The Eye

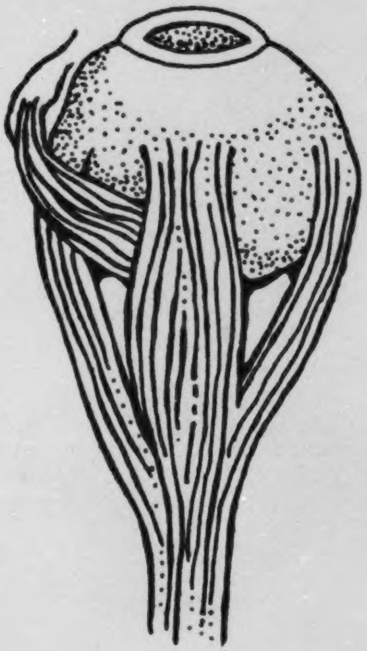
Refraction of Light



V. The Psychologist

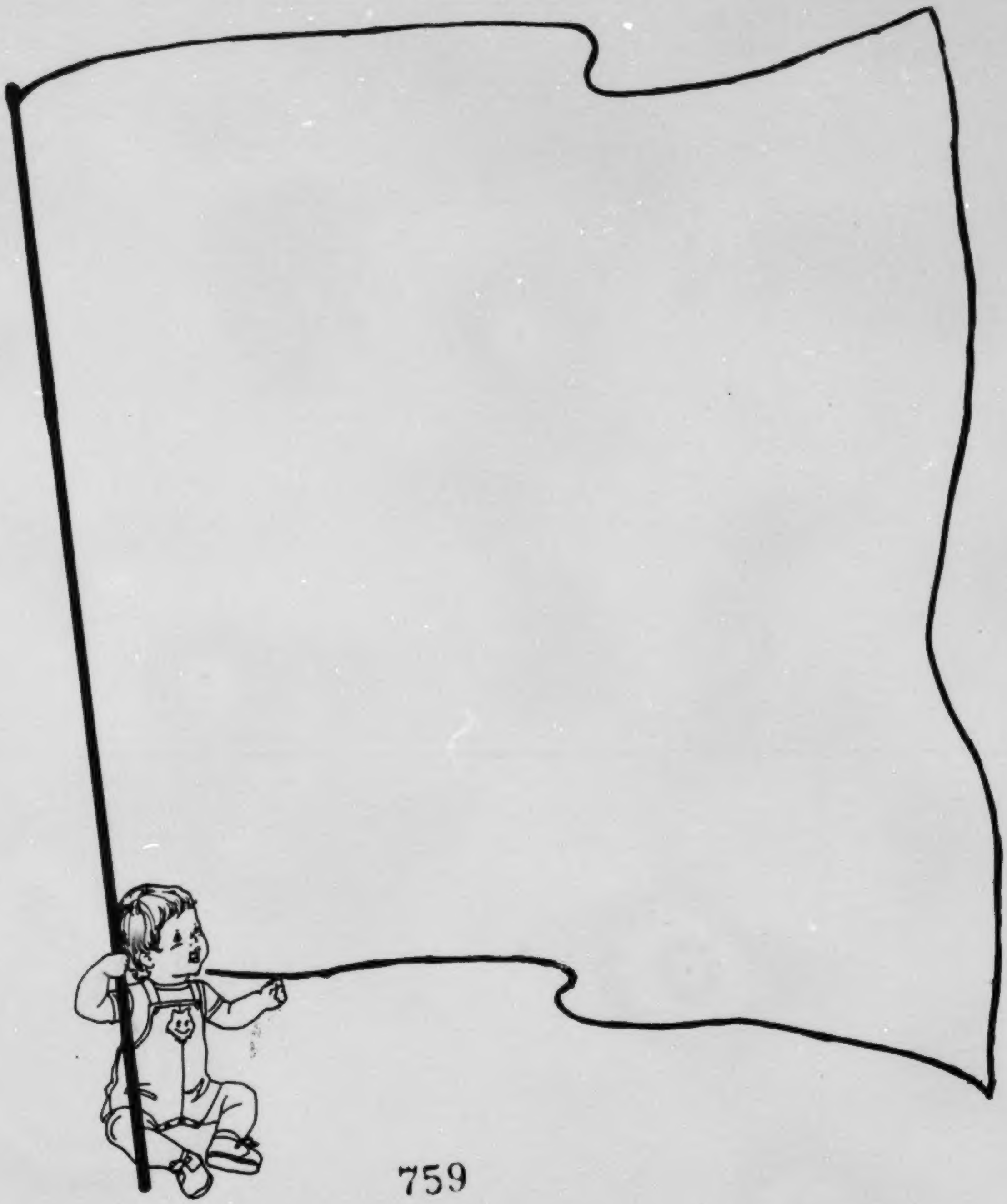
Transparency 22

Eye Muscles



Ditto 137

"Developmental Signals" Of A Vision Impairment



V. The Psychologist

Ditto 138

Developmental Signals Of A Learning Disability

The Child

- is distractable
- is impulsive
- has short attention span
- throws, breaks toys
- takes toys apart or destroys them
- has no self control
- pushes and fights
- has discipline problems
- over asserts - bullies, is mean, surly
- has rapid mood swings
- is nervous
- breaks furniture
- has temper outbursts
- has a Jekyll-Hyde behavior
- is a restless sleeper
- is a deep sleeper
- is sleep resistant
- is a bed wetter after age 5
- is hyperactive
- is withdrawn or daydreams
- is a loner
- is disturbed by small noises or movements
- is easily stimulated in a group or crowds
- overreacts to pain, touch, cold, is ticklish
- is better in one-to-one situation
- is unable to cope with new situations
- laughs or cries easily
- chews blankets, buttons, furniture
- bites or pecks nails, twists hair, bangs head
- twitches, bed rocks, sucks thumb or pacifier
- is fidgety, wiggly, a foot tapper
- is motor driven - constantly moving
- walked early
- is restless
- is a truant, runs away
- responds to stimuli in a physical way, touching everything
- has poor motor coordination
- is clumsy
- climbs, is a dare devil, is accident prone
- insists demands be met
- talks continuously
- does not finish work

Ditto 139

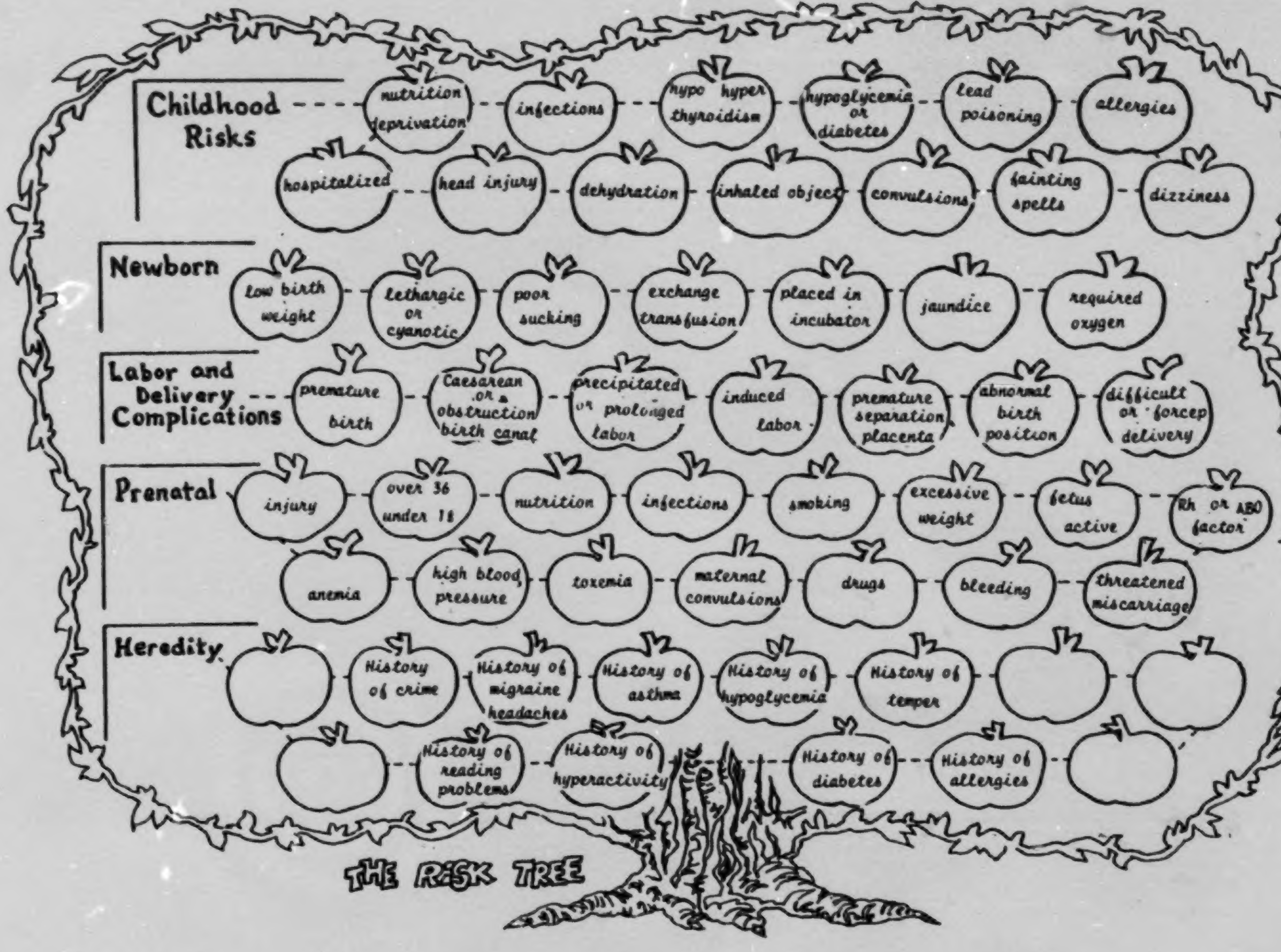
Developmental Signals Of A Learning Disability
(Continued)

- has no responsibility for own work
- has writing problems
- has reading problems
- has spelling problems
- has math problems

V. The Psychologist

Ditto 140

Learning Disabilities - Risk Tree


Childhood Risks
nutrition deprivation
infections
hypo hyper thyroidism
hypoglycemia or diabetes
lead poisoning
allergies
hospitalized
head injury
dehydration
inhaled object
convulsions
fainting spells
dizziness
Newborn
low birth weight
lethargic or cyanotic
poor sucking
exchange transfusion
placed in incubator
jaundice
required oxygen
Labor and Delivery Complications
premature birth
Caesarean or a obstruction birth canal
precipitated or prolonged labor
induced labor
premature separation placenta
abnormal birth position
difficult or forcep delivery
Prenatal
injury
over 36 under 18
nutrition
infections
smoking
excessive weight
fetus active
Rh or ABO factor
anemia
high blood pressure
toxemia
maternal convulsions
drugs
bleeding
threatened miscarriage
Heredity
History of crime
History of migraine headaches
History of asthma
History of hypoglycemia
History of temper
History of reading problems
History of hyperactivity
History of diabetes
History of allergies
THE RISK TREE

Ditto 141

LEARNING DISABILITIES

"What A Parent Can Do"

Action #1. Make a complete history of the child. Include details about pregnancy, birth, diseases, accidents, behavior problems, etc. These are important in determining a diagnosis.

Action #2. Have regular follow-up visits with a physician.

Action #3. Seek counseling for child and/or parents. Any child is taxing but a hyperactive, over-approacher is particularly so.

Action #4. Contact local agency or group for learning disabled children.

Action #5. Understand that the child's behavior and problems are upsetting and disappointing to him also. No one wants to fail, be disliked, or be constantly in trouble.

Action #6. Provide a structured home environment. Routine lessens confusion. Set up a schedule for daily activities such as meals, play, T.V. watching, bedtime, school, etc., and stick to it!!!

Action #7. Keep child's room uncluttered and simple. Have a place where he/she can store things out of sight.

Action #8. Let the child know what is expected of her/him.

Action #9. Cope with emotional swings by shifting attention. Use short-and-to-the-point instructions.

Action #10. Experiment with a child's diet. Avoid any and every food your child eats more than once a week. When child improves, add the foods back to the diet one at a time, to see which ones disagree and which ones do not.

Action #11. Join a parents group such as the local chapter of Association for Children With Learning Disabilities.

Action #12. Learn all you can about learning disabilities and hyperactivity.

Action #13. Give the child lots of love, affection and praise. We all need rewards. They make us feel good about ourselves.

Ditto 142

Action Checklist

As a parent of a growing child I will as Psychologist:

____ Identify the risks that make my infant or child at risk for a hearing, vision, or learning disability.

____ Become aware of normal growth and development by reading and talking to professionals.

____ Observe my high risk infant for deviations in development.

____ Discuss any developmental deviations with a physician.

____ Take my child for regular physical checkups.

____ Take my infant if he/she is at risk of a hearing loss, for regular screening tests the first 2 years of his/her life.

____ Take my child to a physician if
... he/she complains of an earache.
... there is wetness or pus coming from the ear canal.

Ditto 143

Action Checklist
(Continued)

... he/she has an unusual amount of colds.
... he/she is subject to allergies.
... he/she complains of ringing of the ears.
... he/she complains of blurriness.
... a haziness develops over his/her eyes.
... he/she complains of persistent headaches.
... his/her eyes appear crossed.

____ Watch for abnormal hearing behaviors after my child has
... taken an ototoxic drug.
... had measles, mumps, meningitis, or encephalitis.
... had a blow to the head.

____ Take my child to a physician, optometrist or ophthalmologist if he/she shows any developmental signals of a vision impairment.

____ Take my infant, if he/she is at risk for a hearing loss, for a diagnostic hearing test if: the infant shows any abnormal hearing behaviors; the infant fails two screening tests; or if I have any reservations about my infant's ability to hear.

____ Take my preschooler to have her/his eyes tested by the age of 3½.

____ Consider using an allergy elimination diet if my child is learning disabled.

____ Discuss with our physician the use of medication if my child is hyperactive.

____ Discuss with our physician the possibility of an allergy, nutritional deficiency, or metabolic disorder being a contributing factor of my child's learning disability.

○ ○ ○ Bibliography

Acoustic Neuroma, 1972, DHEW Pub. No. (NIH) 73-204 from: National Institutes of Health

Apgar, Virginia. Is My Baby Alright? Pocket Books, New York, 1972, pp 243-260.

Blindness in Infants and Young Children, P609A, NSPB Study of the causes of blindness of children under 7 years of age, from: National Society for the Prevention of Blindness, Inc.

Handbook of Mental Retardation Syndromes, Charles Carter, M.D.

Child Health Encyclopedia, by the Boston Children's Medical Center and Richard I. Feinbloom, M.D.; Delacorte Press, New York, 1975.

Crook, William G. Can Your Child Read? Is He Hyperactive? Food May Be The Villain. Professional Books, Jackson, Tennessee, 1975.

Cutting, James E. and James F. Kavanaugh. On The Relationship of Speech to Language. DHEW Pub. No. (NIH) 76-948.

Davis, Hallowell and Richard Silverman, Editors. Hearing and Deafness, Holt, Rhinehart & Winston, New York 1970.

DeCoursey, Russell Myles. The Human Organism. McGraw Hill, New York, 1955.

Denes, Peter B. and Elliot N. Pinson. The Speech Chain: The Physics and Biology of Spoken Language. Bell Telephone Laboratories, 1963.

DHEW Research, Service and Training Programs in Hearing, Speech, and Language. DHEW Pub. No. (NIH) 76-1072, from: National Institutes of Health.

Gordon, Dan M. "Diseases of The Eye." Reprint from Clinical Symposia, Vol. 14, #4, 1962, CIBA 1962.

Hardy, Richard E. and John G. Gull. Educational and Psychological Aspects of Deafness. Springfield: Charles C. Thomas, 1974.

Harrington, Don A. Services for the Child Who Is Hard of Hearing. Children's Bureau Publication #402, Reprint 1964. From Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price 20¢.

Hearing Loss, 1976, DHEW Pub. No. (NIH) 78-157, available from: National Institutes of Health.

Hearing Sensitivity and Related Medical Findings Among Youths 12-17 Years, U.S., Vital and Health Statistics Series 11, No. 154. HRA76-1636, available from : Government Printing Office, Washington, D.C. 20402.

Hochberg, Irving. Interpretation of Audiometric Results. Indianapolis: Bobbs-Merrill Educational Publ., 1977.

Is My Baby Alright, Virginia Apgar, Kangaroo Books New York, 1972.

"Joint Statement on Neonatal Screening for Hearing Impairment", Committee on Fetus and Newborn Pediatrics, Vol. 47, No. 6, June, 1971.

Learning to Talk--Speech, Hearing and Language Problems In the Preschool Child, Rev. 1977, DHEW Pub. No. (NIH) 77-43, from: National Institutes of Health.

MacFarlane, Elizabeth. "Why Are They Blind", Reprint from The Sight-Saving Review, Vol. 45, No. 1, Spring 1975, pp 3-22, by National Society for Prevention of Blindness, Inc.

Medical Aspects of Mental Retardation, ed. by Charles Carter, Springfield: Charles C. Thomas, 1978.

Monograph No. 10: Human Communication and Its Disorders: An Overview, 1969, NINCDS Monograph Series) DHEW Pub. No. (NIH) 76-1091, from: National Institutes of Health.

Moore, Byron C. and Susan Moore. Mental Retardation: Causes and Prevention, Columbus: Charles M. Merrill, 1977.

Meyers, David, Woodrow D. Schlosser, Robert J. Wolfson, Richard A. Winchester and Norman H. Carmel. "Otologic Diagnosis and the Treatment of Deafness." Reprint from Clinical Symposia, Vol. 22, #2 pp. 35-69, 1970.

NINCDS Special Report, Hearing, Speech and Language Research Program, DHEW Pub. No. (NIH) 78-766, 1978, available from: National Institutes of Health.

"Noise Pollution", Committee on Environmental Hazards, American Academy of Pediatrics, Pediatrics, Vol. No.54 #4, Oct. 1974.

Parent's Yellow Pages, A directory by the Princeton Center for Infancy, Frank Caplan (Ed.), New York: Anchor, 1978.

Parenting Advisor, The, by Princeton Center for Infancy, Frank Caplan (Gen.Ed.), New York: Anchor Press/Doubleday, 1977.

Paton, M.D. and John A. Graig. "Cataracts." Reprint from *Clinical Symposia*, Vol. 26, #3, 1974, CIBA.

"Physician And the Deaf Child, The". Committee on Children With Handicaps, *Pediatrics*, Vol. 51, #6, June 1973.

Place of Vision in Child Behavior, from American Optometric Assoc. C-28.

Pregnancy, Birth and the Newborn Baby, by Boston Children's Medical Center and Richard I. Feinbloom.

Readings in Deaf Ed., 1978-1979. Special Learning Corporation, 42 Boston Post Rd., Guilford, Connecticut 06437.

Robinson, Nancy M. and Halbert Robinson. *The Mentally Retarded Child*, New York: McGraw Hill, 1965, 2nd Ed.

Smith, Lendon. *Improving Your Child's Behavior Chemistry*, New York: Simon & Schuster Pub., 1976.

Standards of Child Health Care: 3rd Ed., American Academy of Pediatrics, 1977.

The Deaf Man and the World: Proceedings of National Forum II. Council of Organizations Serving the Deaf, Feb 19-22, 1969, New Orleans, Louisiana.

To View or Not To View, from: American Optometric Assoc.

Vernon, M. and E. Kilcullen. "Diagnosis, Retardation and Deafness." *Rehabilitation Record*, 13127:24-7, March-April, 1972.

Why Are They Blind? P609B, from: National Society for the Prevention of Blindness, Inc.

Your Eyes for a Lifetime of Sight G510, from: National Society for the Prevention of Blindness, Inc.

Your Vision and How It Works G-21, from: American Optometric Association.

Your Vision and Your Environment 0-18, from: American Optometric Association.

THE MOTHER AND FATHER
OF THE GROWING CHILD
IN THEIR ROLE AS

LAWYER

VI. The Mother and Father of The Growing Child In Their Role as Lawyer

Their Responsibility in The Prevention of Mental Retardation In The Next Generation

Objectives

GENERAL

a. *The student will be aware that there are state and federal laws defining and protecting the educational rights of all handicapped children.*
b. *The student will know that state and federal laws assure all handicapped children the right to a free and appropriate education.*
c. *The student will know that state and federal laws assure parents of specific rights regarding the education of their handicapped child.*
d. *The student will know that state and federal laws assure each handicapped child an educational program developed to meet his/her individual needs.*
e. *The student will know that state and federal laws assure parents the right to play an active and important role in developing their handicapped child's individual educational program.*
f. *The student will understand the process required by law for developing a handicapped child's individualized educational program.*
g. *The student will know that a handicapped child has the legal right to be educated in the least restrictive environment possible.*
h. *The student will regard due process as a constitutional right that parents may need to utilize in securing an appropriate educational program for their handicapped child.*

SPECIFIC

Cognitive

1. The student will be able to name the laws protecting the educational rights of all handicapped children.
2. The student will be able to state the two (2) major educational rights that the law assures all handicapped children.
3. The student will be able to state a parent's rights regarding their child's educational program and placement.
4. The student will be able to describe and define a parent's right of prior notice and consent.
5. The student will be able to define a parent's rights in relation to testing and evaluation of their handicapped child.
6. The student will be able to define a parent's rights in gaining access to their handicapped child's school records.
7. The student will state the purpose of an individualized educational program.
8. The student will describe the process required by law for developing an individualized educational program.
9. The student will describe a parent's role in developing an individualized educational program.
10. The student will define the term "the least restrictive educational environment".
11. The student will define a parent's right of due process.

Affective

1. The student will feel that all handicapped children have a right to a free and appropriate education.
2. The student will feel that it is a parent's right to have prior knowledge of and to give consent to a special educational placement of their child.
3. The student will feel that it is a parent's right to examine their child's school records at any time.
4. The student will feel that it is a parent's right to seek an independent evaluation of their handicapped child.
5. The student will feel that an individualized educational program is important for assuring a handicapped child an appropriate education.
6. The student will feel that it is important for a parent to be involved in planning their child's individual educational program.
7. The student will feel that the least restrictive educational environment is important in the education of a handicapped child.
8. The student will feel that due process is a constitutional right of all parents.
9. The student will feel that a parent may need to instigate due process proceedings to insure that their handicapped child receives a free and appropriate education.

☐ Background Information for the Teacher

More than ever before, parents are able to play a decisive role in planning for the education of their handicapped child. State and federal laws now exist that protect the rights of a handicapped child and his or her parents. In the role as a lawyer, the parents need to be aware of the laws, their historical significance, and what parental rights are insured by legislation.

THE LAWS

In 1969, Indiana passed a mandatory special education law which ensured the right of education to all handicapped children in the state of Indiana. The law mandated that special children between the ages of 6 and 18 be provided a program. For children younger than 6 and older than 18, the schools were (and still are) permitted to provide programs but are not required to do so. This elective programming is extended to six months in the case of deaf children. Special educational services included in Rule S-1 are and were:

multiply handicapped
hearing impaired
learning disabled
all mentally retarded
visually handicapped
emotionally disturbed
physically handicapped
communication handicapped.

Since 1969 and the passing of Rule S-1, there has been major educational legislation passed at the federal level. This federal legislation has served as a historical landmark in educational programing and rights of the handicapped. Rule S-1 has been revised to meet the guidelines set by this innovative legislation. These laws serve as guidelines for every state's special education laws. They are Section 504 of the Rehabilitation Act of 1973, and PL (public law) 94-142, Education for All Handicapped Children Act of 1975.

Section 504 of The Rehabilitation Act of 1973.

It has been called "the first Federal Civil Rights Law Protecting The Rights of The Handicapped". It states no...qualified handicapped individual...shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or actively receiving federal financial assistance".

When the Rehabilitation Act became law in 1973, it applied only to discrimination in employment. In 1974 it was ammended to extend coverage of Section 504 to all areas of civil rights including education, post secondary education, vocational training, and other social service programs.

According to Section 504 any school receiving HEW funds must provide a free appropriate education to each handicapped child in the school's jurisdiction, regardless of the severity or nature of the handicap. Appropriate education is defined as regular or special education and related services that are designed to meet individual educational needs of handicapped children as adequately as the needs of the non handicapped. The law lists specific requirements to be met by the schools. Following the requirements is needed to maintain federal funding. Figure 75 outlines these guidelines.

The educational Provisions of Section 504 closely coordinates with PL 94-142. The provisions of both of these laws became effective September 1, 1978.

Figure 75. Requirements of Public Schools as Defined in Section 504 of The Rehabilitation Act of 1973.

1. Annual notification of parents of handicapped children's rights to special education services.
2. Implementation of an individualized educational program.
3. A pre-placement evaluation.
4. Evaluation procedures which accurately reflect the student's apptitude or achievement level.
5. Placement procedures which ensure proper documentation of information and involve persons knowledgeable about the child in a placement decision.
6. Mainstreaming in educational programs and other activities.
7. Parent access to school records and confidentiality as to the record's contents.
8. Periodic re-evaluation of handicapped children.
9. Transportation to educational programs.
10. Procedural safeguards and due process procedures which involve parents.

11. Free residential placement (when such placement is necessary to meet educational needs of the handicapped child).

12. Equal opportunity for handicapped students to participate in,

    - non-academic services
    - recreational programs
    - special school groups or clubs
    - extra curricular activities
    - counseling services
    - health services
    - transportation.

13. Programs, services, and facilities should be accessible to the handicapped (this particularly pertains to architectural barriers).

14. Prohibits rules that limit participation of the handicapped students in educational programs and/or activities such as; denial of auxiliary aids as tape recorder; guide dogs; interpreters; etc.

The Education For All Handicapped Children Act of 1975
PL 94-142

This law culminated Congress's recognition of the impact of the right to education litigation of the late 60's and early 70's. In the statutes, Congress reaffirms the responsibility of the states to maintain education and also recognizes the federal government's responsibility of providing financial assistance to the states in the education of handicapped children. Through PL 94-142 the federal government provided financial assistance to any state that mandates the right of education for all handicapped children and is consistent with the stated purposes of PL 94-142 to

1) assure that all handicapped children have available to them a free appropriate public education,
2) assure that the rights of handicapped children and their parents are protected,
3) assist States and localities to provide for the education of handicapped children, and
4) assess and assure the effectiveness of efforts to educate such children.

To assure adherence, consistency, and clarity to each of these four points, Congress developed specific rules and regulations relating to each of them. To receive federal assistance each state agency and school corporation must fall within these service and program guidelines.

In order to assure all handicapped children the right to a free appropriate public education, the regulations require each state to submit a plan to the U. S. commissioner of Education for approval. The plan must demonstrate that: the state is assuring all handicapped children the right to a free appropriate public education, that the state is committed to achieving, by September 1, 1978, special education and related services to all handicapped children of ages 3 to 18, and all handicapped children ages 3 to 21 by September 1, 1980. (Unless ages 3-5 and 18-21 are exempted because of state law, practice, or court decision.)

The act also specifically requires the development of an individualized education program (IEP) to meet the unique needs of the handicapped child. The program must be developed in a conference including at least a representative of the school who is qualified to provide or supervise the special instruction needs of handicapped children, the teacher, the parent or guardian, and when appropriate, the child.

The law also outlines safeguards to assure the rights of handicapped children and their parents. The parent or guardian has the right to request a due process hearing if they object to the placement suggested as a result of the IEP. This hearing must be presided over by an objective hearing officer and provides the right

... to counsel or representation by an individual knowledgeable of the problems of the handicapped child.
... to confront, cross-examine and compel attendance of witnesses.
... to a verbatim record of the hearing.
... to a written decision and finding of fact.
... to appeal an adverse decision to a state or federal court.

All these procedural safeguards specified in the act were derived from earlier court decisions concerning the right to an appropriate education. These court cases also laid the groundwork of PL 94-142 inclusion of the following educational rights:

... handicapped children will be educated with non handicapped children to establish the least restrictive environment possible.

... tests and other materials or methods used to evaluate the child's special needs shall be neither racially nor culturally discriminating.

... information gathered concerning a handicapped child is to be kept confidential. Parents must be given the opportunity to see relevant school records prior to a hearing.

... a written notice must be sent to parents whenever a school proposes a change in the child's class placement or IEP.

HISTORICAL DEVELOPMENT

Although the educational system is still feeling growing pains in the enactment of PL 94-142 and of Section 504 of the Rehabilitation Act, it is hard to believe that less than 10 years ago these rights were not given handicapped children and their parents. Federal involvement has been slow in developing services for all the handicapped. State and local involvement, because it was initiated early, has even taken longer to evolve. Legislation for education of the handicapped, came first through state legislatures in the 1800's but it has taken over a hundred years, two World Wars, the Cold War, right to education litigation for racial minorities, right to education litigation for the handicapped, and finally federal legislation to ensure a free and appropriate education to all handicapped children in every state of the United States.

THE BEGINNING - STATE SCHOOLS AND INSTITUTIONS

1823 - Kentucky established the first state school for the deaf.

1827 - A school for the deaf was established in Ohio.

1832 - Massachusetts and New York established the first state schools for the blind.

1833 - State school for blind established at Philadelphia.

1848 - Massachusetts legislature appropriated $2,500 per year for a 3 year experimental program to train and teach ten specially selected retarded children.

1851 - The New York legislature appropriated $6,000 for a 2 year experimental program for the "feeble-minded".

1852 - Pennsylvania appropriated the first use of public funds to a private school for the education of the handicapped. In this case the handicapped were the feeble-minded.

1869 - The first public day school for the deaf was established in Boston.

1874 - New York City initiated special education classes.

1887 - Indiana established a benevolent Institution for the feeble-minded at Fort Wayne.

From 1890 on, a new trend in the education of the handicapped began to develop. Public school classes began to emerge in some states supplementing the programs of the state schools and institutions that were previously established. With the advent of these classes financial assistance and teacher training in special education began.

A NEW TREND

1896 - The first public school class for the mentally retarded was begun in Providence, Rhode Island.

1900 - Chicago established the first public school class for the crippled and the blind.

1913 - Sight saving classes for the partially sighted were initiated in Roxbury, Massachusetts and Cleveland, Ohio.

by 1915 - Minnesota provided state aid in the amount of $100 per child attending a special class and required the teachers of special classes to hold special certificates.

1917 - An education program was begun for the education of children with cardiac and other health problems.

1919 - Pennsylvania established the first provision for local school districts to work cooperatively with each other to provide special education.

1920 - Massachusetts provided financial assistance for local boards of education to meet the following requirements:

1) determination of the number of handicapped children in their district,
2) provision for special classes when there are ten or more such children.

1923 - Oregon enacted statutes that provided for educationally exceptional children, the gifted and the handicapped.

It was primarily through these early state efforts that basic services and designation of educational rights of the handicapped began. The federal role as it pertained to the handicapped was limited and intended to solve localized problems or meet the needs of the two exceptionality areas of the blind and the deaf.

EARLY FEDERAL LAWS

1827 - The first bill related to the handicapped became national law. It was not concerned with services, but granted land for a "seminary of learning" in Florida and decided the location of the Deaf and Dumb Asylum of Kentucky.

1847 - Another bill related to the selling of lands granted to the Kentucky Asylum.

1855 - First substantive law for the handicapped. It established the first federal facility for the "insane". The facility was designed primarily for individuals who had served in the army or navy but also provided for residents of the District of Columbia and non residents to be admitted.

1857 - The first federal effort in the education of the handicapped. For the first time a law authorized the federal government to grant tuition payments to an institution established solely for the education of the handicapped. The institution was the Columbia Institute for the Instruction of the Deaf and Dumb, and the Blind, officially named Gallaudet College in 1954. It also required:

a) that deaf and blind children in the District of Columbia were to be identified and reported to the president of the college,
b) services be provided to children so identified,
c) the college was to admit deaf and blind persons from any state or territory.

1858 - First federal funds appropriated for the handicapped. Providing $4,000 per year for 5 years to cover maintenance and tuition of pupils, and salaries and incidental expenses of the Columbia Institution.

1864 - President Lincoln signed a law that authorized the Columbia Institute "to grant degrees in the liberal arts and sciences to such pupils of the institution, as are usually granted and conferred in colleges."

1865 - An act changed the name of the Columbia Institute to The Columbia Institution for the Instruction of Deaf and Dumb. It provided for blind persons formerly eligible to also attend the institution.

1867 - A law was passed to ensure the right of "deaf mutes who were not residents of the District of Columbia" to be eligible for admission.

1879 - Congress authorized $250,000 to establish a "perpetual fund for the purpose of aiding the education of the blind in the United States of America through the American Printing House for the Blind." This was a first for federal government in authorizing dollars to provide materials and other supplies to a specific disability group. The purpose was to allow the American Printing House for the Blind, to manufacture and furnish embossed books and other tangible apparatus for instruction of the Blind.

For the next 39 years, only one federal law regarding the handicapped was passed. It allowed special mailing privileges to the blind because of the high postal costs for mailing the bulky braille reading material. It took World War I for Congress to recognize the needs of other handicapped citizens and this was at first only applied to veterans.

WORLD WAR I AND CULMINATING LEGISLATION

1918 - Soldier's Rehabilitation Act was the first significant federal act for the handicapped in the 20th century. It provided for vocational rehabilitation services to disabled veterans of World War I. It did not include civilians because of the "practicalities" of such a program and the view that "rehabilitation of the disabled was not a responsibility of the government."

1920 - Citizen's Vocational Rehabilitation Act became law. It provided money for counseling, job training, job placement, supply of artificial limbs and other prosthetic devices in order to prepare the disabled civilian and veterans to return to work.

1935 - The Social Security Act became law. Originally it was not designed for the disabled, but over the years programs financed through general revenues were added to provide: financial assistance and services to the needy blind; families with dependent children; the aged; and the permanently totally disabled.

Between 1920 and 1942 several other laws were passed, but all of them were aimed at providing additional services for the blind. The services included: expanded library services; special mailing privileges; an entitlement to operate vending stands in federal buildings; priority for government purchase of blind made products; financial assistance under the Social Security Act; special income tax exemptions; and special privileges for the blind traveling on interstate railroads and buses. It again took another World War for Congress to realize the needs of other disabled and handicapped citizens.

WORLD WAR II INFLUENCE

1943 - Citizens Rehabilitation Act of 1920 was expanded to provide services for not only the physically handicapped but for the mentally ill and the mentally retarded.

1954 - The Citizens Rehabilitation Act was again amended with provisions for research, demonstration, and training programs in order to upgrade the total scope of rehabilitation services. It was also amended in 1965 and 1967 to include larger numbers of disabled individuals. The 1967 ammendment established centers for services to deaf-blind youth and adults.

1954 - Congress passed the Cooperative Research Act. It was designed to foster research between the federal government and institutions of higher learning, but no funds were provided.

1957 - Funding was finally appropriated for the Cooperative Research Act. Out of the 1 million dollars appropriated, $675,000 were directed for research relating to the education of the mentally retarded.

This funding was the first general fund specifically for services to the handicapped and set a new pattern for funding and legislation for the next decade. This Act's impact was supplemented by the Russians launching the first space satelite, the Sputnik. Up to this point in history, the general attitude toward federal government's involvement in education was neutral to negative. With the advent of Russia's Sputnik, the federal attitude jumped to the positive side. The United States suddenly sought to guarantee that America's educational system would surpass that of the Russians. With Congress' concern for general education the interest in education of the handicapped also grew.

THE COLD WAR

1958 - The National Defense Education Act was passed. It was designed to stimulate programs for scientists and mathematicians whose work was vital to "national defense". This bill was the first to imply recognition of extra services be provided to the exceptional and gifted students.

1958 - Enactment of PL 85-905 authorized the making of captioned films for the deaf and established a loan service for their dissemination.

Enactment of PL 85-905 established a program providing funds to train professional personnel who would in turn train teachers to work with the mentally retarded.

1961 - Social Security Amendments provided support for training of speech pathologists and audiologists and classroom teachers of the deaf, hard of hearing, visually impaired, emotionally disturbed, crippled, and other handicaps.

1961 - President Kennedy appointed the "President's Panel on Mental Retardation" and mandated them to develop a national plan to combat mental retardation.

One of the biggest assistances that handicapped people received in public acceptability and further legislation, was the fact that President Kennedy had a retarded sister. Of no less importance, was the fact that Vice President Humphrey had a grandchild that was mentally retarded. It was the commitment of both of these individuals that brought about the establishment of the President's Panel on Mental Retardation and implementation of its suggestions into legislation.

1963 - The Mental Retardation Facilities and Community Mental Health Construction Act of 1963 was passed. It provided funds for states to: develop state and community programs; construct facilities for the retarded; establish community mental health centers; research and to provide demonstration centers for the education of the handicapped; train personnel to work with the handicapped. This law was ammended several times expanding the funding and facilities encompassed by it originally.

1965 - National Commission on Architectural Barriers was established to study the problems facing the physically disabled.

1965 - The Elementary and Secondary Education Act became law. It was the first full scale commitment by federal government to improve education throughout the nation. This act also provided funds for assisting local educational agencies in meeting the needs of the "educationally deprived children".

1965 - Even before the year was out Title I of the Elementary and Secondary Education Act was amended. It established grants to state agencies responsible for providing free public education for handicapped children. These funds were provided to schools serving the handicapped that were not eligible for funding under the original act.

1965 - Enactment of the National Technical Institute for the Deaf, established the National Institute for the Deaf at Rochester, New York, and a model Secondary School for the Deaf on the Gallaudet College Campus in Washington, D. C.

1966 - The Bureau of Education for the Handicapped was established in the Office of Education.

This was created against vigorous objections from the administration.

1966 - The Elementary and Secondary Education Act was again amended by Title VI.
1) It provided funds for states to expand programs and projects related to the needs of the handicapped.
2) It also established the National Advisory Committee On Handicapped Children to advise the Commissioner of Education.

1967 - Another amendment to the ESEA was passed to include:
1) Establishment of regional resource centers.
2) Services for the deaf-blind.
3) Acceleration of funds for recruiting educational personnel and the dissemination of information about special education programs.
4) Allocation of Title III and Title V funds to assist state educational agencies expand their programs for handicapped children.

These funds were allocated in hopes that more programs for the handicapped would be provided. Handicapped Children were still being excluded from public school programs.

1968 - The Handicapped Children's Early Education Assistance Act was designed to establish experimental preschool and early education programs for the handicapped and should serve as models for state and local educational agencies.

1968 - Congress mandated that 10% of the state's allotment of funds authorized under the Vocational Education Act would be used for vocational education programs for specifically handicapped individuals.

1969 - The Gifted and Talented Education Assistance Act was passed as an amendment to ESEA. It authorized
1) that state departments of education provide technical assistance for the programs offered the gifted and talented
2) that state departments of education provide fellowship awards for teachers of these children
3) that funding be provided for educational and research services for millions of formerly ineligible children falling in the category of learning disabled.

With the advent of all this federal legislation, the states began mandating special education through their own state statutes. The federal legislation thus far offered financial assistance and encouraged the development of educational programs for the handicapped. There were no procedural safeguards of due process, assurance of appropriate educational services, or directives mandating that all children receive a public school education. There were some innovative states that took the initiative to incorperate these items in their state statutes.

STATE STATUTES

	State	Age of Eligibility	Type of Mandation	Categories Excluded
1949	Hawaii	5-20	Full program	
1954	New Jersey	5-20	Full program	
1956	Pennsylvania	6-21	Full planning and programing	
	(In 1972 the court ordered that the state provide appropriate services to all the mentally retarded in Pennsylvania by September of 1972. See section on litigation, page 468.)			
1962	Kentucky	6-21	Petitioned for programing of trainable mentally retarded	
1964	Rhode Island	3-21	Full program	
1965	Illinois	3-21	Full program	
1966	Connecticut	4-21	Full planning and programing	
1968	Georgia	3-20	Full planning and programing	
1969	Indiana	6-18	Full planning and programing	
1969	Texas	3-21	Full program	
1969	Utah	5-21	Full program	
1969	Wyoming	6-21	Full program	
1970	Kentucky	6-21	Planning and programing	The trainable mentally retarded had been mandated in 1962
1971	Alabama	6-21	Full planning and programing	Profoundly retarded
1971	Michigan	birth-25	Full planning and programing	
1971	Oklahoma	4-21	Full program	
1971	Washington	6-21	Full program	
1972	District of Columbia	from age 6	No statute, court order: full program	
1972	Idaho	birth-21	Full program	
1972	Louisiana	3-21	Court order-Orleans Parish only: selective for mentally retarded. Otherwise mandatory	Other than mentally retarded
1972	Massachusetts	3-21	Full planning and programing	
1972	Minnesota	4-21 except MR(5-21) & ED(6-21)	Full program	
1972	New Mexico	6-21	Full planning and programing	
1972	Ohio		Selective planning	Trainable or profoundly retarded
		birth-21	permissive	Other than crippled or EMR, deaf, blind, partially hearing or vision
1972	*Pennsylvania*	*6-21*	*Court order: selective (mentally retarded only)*	*All other exceptionalities except mentally retarded*

1972	South Carolina	6-21	Full planning and programing	
1972	South Dakota	birth-21	Full program	
1972	Tennessee	4-21	Full planning and programing	
1972	Vermont	birth-21	Full program	
1972	Virginia	5-21	Full planning	
1973	Arizona	5-21	Selective planning and programing	Emotionally handicapped
1973	Colorado	5-21	Full planning and programing	
1973	Florida	3-no max. (13 yrs. guar.)	Full program	
1973	Maine	5-20	Full planning and programing	
1973	Maryland	Services begin as soon as child can benefit regardless if he is of school age	Full planning and programing	
1973	Missouri	5-21	Full planning and programing	
1973	Nebraska	5-18	Full planning and programing	
1973	Nevada	5-18	Full program	
1973	New York	5-21	Full program	Profoundly retarded
1973	North Dakota	5-21	Full planning and programing	
1973	Oregon	EMR 6-21 others birth-21	Full program	
1973	Wisconsin	3-21	Full planning and programing	
1974	Alaska	From age 3	Full program	
1974	Iowa	birth-21	Full program "if reasonably possible"	
1974	Kansas	birth-21 Developmentally disabled	Full planning and programing	
1974	Montana	6-21	Selective & conditional: full program mandated to be effective 7-1-79	
1974	North Carolina	birth-adulthood	Full planning	
1974	West Virginia	5-23	Full program	
	California	6-18	Selective	"Educationally handicapped" (Emotionally disturbed, learning disabled)
	Delaware	4-21	Full program "where possible"	Severely mentally or physically handicapped
	Mississippi	birth-21	Permissive	
	New Hampshire	birth-21	Full program	

Full program = laws required that programs must be provided where children meet the criteria defining the exceptionality.

Full planning and programing = law required planning prior to implementing a program.

Planning = law mandates only a requirement for planning.

This listing was adapted from a table prepared by Project Waiting, the Development and Evaluation of State and Local Special Education Administration Policy Manuals, of the State/Federal Information Clearinghouse for Exceptional Children, of the Council for Exceptional Children.

Although most states had some type of mandatory special education law, handicapped children were still falling through the cracks of the educational system. Some exceptionality areas had no services at all. Others might have had a program provided, but it was often not meeting the children's needs. Placement may or may not have involved the parents and/or teachers. Due process was usually not provided for and testing often was inappropriate and only provided a label. With all these inadequacies, litigation became the name of the game in the 60's and early 70's.

RIGHT TO EDUCATION LITIGATION

1954 - Brown v. Board of Education

The Brown case challenged the public school segregation and the basic principle of equal opportunity for an education. The court's decision: "In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms."

Although the arguments set forth in this case challenged public school segregation on the basis of race, the basic principle of equal opportunity for an education was carried forward in two of the litigation cases of the 70's. All of the litigation cases were on behalf of the handicapped children who were being denied the right to an appropriate education.

1970 - Diana v. St. Board of Education

In January of 1970, a suit was filed in the District Court of Northern California on behalf of nine Mexican American students. They charged that testing procedures used for placement were prejudicial in that the tests: placed heavy emphasis on verbal skills requiring facility with the English language; the questions were culturally based; and were standardized on white, native born Americans. The court approved an agreement between both parties resulting in:

1) Children being tested in their primary language.
2) Mexican American and Chinese children in classes for the educable mentally retarded were to be retested and evaluated.
3) Special efforts were to be extended to aid misplaced children and readjust them to regular classrooms.
4) The state was to undertake immediate efforts to develop and standardize an appropriate I.Q. test.

1971 - Pennsylvania Association of Retarded Children v. Commonwealth of Pennsylvania, David H. Kurtzman, et al.

The suit had been brought against the Commonwealth for the state's failure to provide access to a free public education of all children. The court degree included

1) all retarded children between the ages of 6 and 21 were to be provided a publicly supported education.

2) education was to take place in programs like those provided to non handicapped children.

3) establishment of the right of all children to protection of procedural due process (in accordance with the 4th and 5th amendments) whenever changes in a child's educational statutes were proposed.

4) The order listed 23 specific steps including:

   a) written notice to parents of proposed action.
   b) notice of specific reasons for the action and the legal authority upon which the action can occur.
   c) information about alternative education.
   d) information on a parent's right to contest the action at a hearing.
   e) information about the purpose and procedure of the hearing.
   f) right to obtain an independent evaluation.

1972 - Mills v. The Board of Education of the District of Columbia.
The parents and guardians of seven District of Columbia children brought a class action suit against the District of Columbia Board of Education, Department of Human Resources, and the Mayor for failure to provide all children with a publicly supported education. The court issued a stipulated agreement and order that provided for the following:

1) Plaintiffs were to be provided a publicly supported education.

2) Defendants were to provide a list of all other children not receiving a public school education.

When the defendants did not comply, the parents and guardians filed another motion and the courts responded:

3) That it is the constitutional right of all children, regardless of an exceptional condition, to a publicly supported education.

4) That the rules, policies, and practices which excluded children without immediate alternative services and without prior hearing and review of placement procedures, denied the children the rights of process and equal protection of the law.

The defendants responded that they could not afford the relief sought unless more money from Congress was appropriated or funds were diverted from other educational services. The court responded:

5) "If sufficient funds are not available to finance all the services and programs...... then the available funds must be expanded equitably in such a manner that no child is entirely excluded from publicly supported education consistent with his needs and ability to benefit.....funding or administrative inefficiency, certainly cannot be permitted to bear more heavily on the exceptional or handicapped child than on the normal child."

1973 - Wyatt v. Stickney
This case was one of right to treatment. The court was called upon to look at certain institutions in Alabama for the mentally ill and for the retarded. The judge ruled that citizens of state institutions have the right to:

1) humane physical and psychological environment.

2) treatment, habilitation, or programing.

3) individual programing fitted to each person's capabilities.

4) a program designed individually and reviewed often.

5) an education.

6) privacy.

7) the use of telephones and to receive and send letters.

8) receive programs in the least restrictive setting.

During the 60's and 70's, other court cases also resulted in the same right to education rulings. In all instances the court not only decreed that handicapped children are entitled to a free public education, but also entitled to an education appropriate to their needs. These "right to education" litigations acted as catalysts for the legislation of the 70's. Congress historically passed laws guaranteeing the rights of all handicapped children to a free and appropriate education.

LANDMARK LEGISLATION AS A RESULT OF LITIGATION

1973 - Rehabilitation Act of 1973 including Section 504, refer to pages 459 and 460.

This piece of legislation concerning the handicapped was the first in history to be vetoed by the President, not only once but twice. Historically before this time it had almost been routine for legislation dealing with the handicapped to be unanimously voted in subcommittees, in full committees, and on the floor of each congressional house. In 1972 the Congress passed the first rehabilitation bill unanimously, but the president vetoed it. The second version in 1973 was passed and amazingly vetoed again, but the veto was sustained by the Senate making this bill a law.

1974 - The Education Amendments of 1974, PL 93-380. This law again amended the Elementary and Secondary Education Act, Title VI-B. It approved massive increases in financial aid and outlined the basic right to education of handicapped children. It was the forerunner of PL 94-142. It included:

1) increased funding from $100 million to $660 million.
2) guaranteed the educational rights of exceptional children and their parents.
3) assured due process procedures.
4) assured education of the handicapped in the least restrictive environment.
5) required that each state establish a goal of providing full educational opportunities to all handicapped children within each state.
6) required each state to develop a comprehensive blueprint and detailed timetable toward the achievement of education of all handicapped children.
7) provided grant support for meeting the educational needs of the gifted and talented children. A first in the education of the gifted.

PL 93-380 laid the groundwork for PL 44-142.

1975 - Congress passed the education of All Handicapped Children Act, PL 94-142. This law commits the federal government to a substantial financial assistance toward the education of America's handicapped children. It refines and strengthens the educational rights that PL 93-380 outlined. In stark contrast to normal congressional procedure, this law is permanent with no expiration date.

PARENTS AS ADVOCATES

The laws go a long way toward assuring the provision of appropriate educational programs, but a large responsibility for seeing that they are implemented relies on the parent acting as an advocate for his or her handicapped child. To be an effective advocate, a parent must be aware of the four rights that the law insures for every parent of a handicapped child. They are

a) prior notice and consent,
b) independent evaluations,
c) access to records,
d) due process procedures.

Prior Notice/Consent guarantees parents prior knowledge of a proposed change or refusal to change the identification, evaluation, or educational placement of their child. The parent must be given written consent before a school can conduct a pre placement evaluation or initially place their child in a special education program. A hearing may be requested by the school if a parent does not consent to evaluation or placement. Likewise a parent may request a hearing if they disagree with the school district's decision.

Independent Evaluations may be sought by a parent at their own expense. Their results must be considered by the placement team in determining the child's educational program. A parent may request that the independent evaluation be paid for by the school if they feel that the school's evaluation was incomplete or inaccurate. The school may appeal this payment request by initiating a hearing to determine the appropriateness of the original evaluation.

Access to Records is a parent's right to examine their child's school records at anytime. A parent also has the right to have a representative review the records or have copies made. The school must reproduce the copies within 45 days at a reasonable cost.

A school may not charge for copies if such a cost would effectively prevent a parent from exercising their right to inspect and review the records. A parent must be allowed to see a child's records prior to any due process hearing relating to identification, evaluation, or placement of their child.

A parent has the right to request a correction be made in the child's records if they believe the records are inaccurate in any way. Each school is required to establish and publicize the procedure for gaining access to records and removing false or misleading information.

If a parent finds their child's records to contain information which is incorrect or misleading, they should write to the principal and request its removal. If the request is denied the parent then should make a request in writing for a due process hearing. Should the parent lose this hearing they still have the right to place a statement in their child's records indicating the portions which they disagree with.

Due Process Procedures are a part of our nation's constitutional heritage. A parent should not feel guilty or fear using this right. Due process guarantees that a parent or child may not be deprived of their right to free choice unless specific procedures are followed. Parents must be allowed a fair chance to present their side to an impartial person.

Due process safeguards protect parental rights in all procedures related to evaluation, identification, and placement. If, at any point, a parent disagrees with school official's decisions regarding their child's special education program or services, they can initiate a due process hearing by writing the superintendent of the schools. The school must respond to a parent's appeal with written notification of a hearing date scheduled within 30 days of the request. Upon request the school must also inform a parent of any free or low cost legal assistance available.

The due process hearing is to be presided over by an impartial hearing officer, who is not employed by the school, and who has no professional or personal interest in the case.

At the hearing parents will be given the right to present their reasons for disagreeing with the opinion of the school system. A parent also has the right to counsel, present evidence, call witnesses, and question any school official or employee who might have information pertaining to the parent's viewpoint on programing for their child.

During the due process proceedings the child must remain in his or her educational placement unless he or she is applying for a non handicapped placement. In this case the child will be admitted into that program until a decision is made.

A parent must receive a written decision from the hearing officer within 10 days. If a parent is still dissatisfied, they may further appeal the decision to the State Board of Education. If a parent is still dissatisfied with the decision made by the State Board, a parent may consult an attorney and begin court proceedings.

DO'S AND DONT'S

Notify The School About Your Child's Special Need.

1. DO...Find out about preschool services for handicapped children. A great many state laws now call for special programs starting at age three, at least for certain specific disabilities. The principal of the local school (or the district superintendent) can provide information about available programs.

   PL 94-142 provides incentives for education of children with handicaps between ages 3 and 5, and programs are growing.

   Indiana law states that a school corporation may provide a special education program for hearing impaired children six months through two years and special education programs for handicapped children ages 3 to 5.

2. DO...Get in touch with the local superintendent of schools without delay if your child has a handicap and is not in school. A school system is obligated to find all children with disabilities. According to law, no child may be excluded from school because of a handicap. Ask that your child be given an evaluation to find out what kind of program he should have.

   The school must take a careful and thorough look at any child who may need special services - by providing a comprehensive evaluation. Once a child is found eligible for special education, the school must arrange to provide appropriate services; a meeting to prepare an individualized education program must be held within 30 days.

3. DO...Keep your own rights file! Use it to document any steps taken to find appropriate education and related services for your child - from the "suspicion of need" stage on up. The file should include: diagnostic test results and other professional reports, reports from preschool teachers about your child, copies of letters to and from school officials. Keep copies of state and federal laws and procedures for education of handicapped children and other relevant information. All this is needed to keep track of a child's progress, and to stand up for his rights if the school fails to provide an adequate program.

Have Appropriate Testing Done

4. DO...Make sure your child has a complete physical examination. This is a must. A child who is thought to be retarded may actually have a visual impairment that has never been discovered. Other difficulties may be caused by hidden physical conditions.

5. DO...Remember - calling a child handicapped by this or that condition does not tell about his potential, how he learns best, what he can do.

6. DO...Ask what tests will be given and why. When you sign your name giving permission to have your child tested, make your signature count. Find out what information these tests will yield that can help you and the school know how your child learns, what skills should be strengthened or developed, what problems he has to deal with, what special help he needs. Inform yourself as fully as possible about what these tests are expected to do - before giving your consent to have your child tested.

7. DO...Be sure that testing does not discriminate in any way. If a child speaks Spanish, or any language other than English, tests must be given in the language he knows best. Children who have grown up in minority cultures should not be judged by answers to questions about a world that is totally strange to them. Children who are deaf must have interpreters; all testing must take the nature of handicaps into consideration, so that the picture of a child's ability is a truly fair one.

8. DO...Be sure that the evaluation of your child is complete...that it does not consist only of a single test aimed at pinning an IQ score or any other label on him...but is a well-rounded stock-taking by a team of specialists that tells how your child is doing in all areas of his intellectual, physical and emotional development. This is the only way an appropriate education program can be provided. Information may be gathered in different ways...by talking to people who know your child (including doctors or other profes-

sionals), by meeting with parents, by observing the child and giving him some tests.

9. DO...Insist that the results of testing and evaluation be explained to you in clear, jargon-free terms, and that you have copies for your own file.

If you do not feel that the school's evaluation is fair or accurate, you are permitted by law to get an independent evaluation from other professionals. But - you may end up paying for it. The school system can ask for a due process hearing when its evaluation is challenged. A parent also may request a due process hearing if the independent evaluation does not agree with the schools. The independent evaluation must be considered in decisions about placing your child. It may be used as evidence in a due process hearing.

10. DO...Remember testing will not necessarily mean that your child will be found eligible for special education. If you feel that the school's decision is wrong on this score, you can request a due process hearing at this point.

11. DO...Call for due process, if the school feels the child is or is not eligible for special education and you do.

Attend Case Conference Meetings

12. DO...Be sure to attend all meetings held to plan or check into your child's individualized education program (IEP). The law states clearly that an IEP team must include one or both parents, the child's teacher and a representative of the school system. (Sometimes, one or more other specialists may be there, too. Since this is the first time your child will get special services, someone who was involved in testing your child must be present. Schools are expected to make every effort to get in touch with parents to make sure that they come to IEP meetings - and to arrange times that they can come.

IEPs must be prepared for every child who is eligible for special education. This programming is the key to getting appropriate services. Without an IEP a student should not be placed in a special program. The IEP should be developed during this conference not before.

13. DO...Prepare as well as you can for the case conference meeting. It will design your child's educational program.

Have your child's file ready, with information easily available on all testing and evaluation that has been done - by the school, or privately. Use your right to go through school records to be sure they are accurate and up-to-date. This meeting must be based on a recent and comprehensive evaluation, so check to be absolutely sure this has happened.

14. DO...Bring along a helper to the case conference meeting if you will feel more comfortable or secure. More and more people are getting special training to act as advocates for parents in these new and unfamiliar circumstances. Your helper can rehearse with you ahead of time, explain what will go on and how decisions about the IEP will be reached. Ask members of your local parent organization if they are aware of this kind of help. If you can't find someone trained as an advocate, try to get assistance from another parent who has been through it. Experience is a great teacher, and you can benefit from it.

Help Develop The Individual Educational Plan (IEP)

15. DO...Be as clear as possible in your own mind about what kind of things you believe your child is ready to learn. Talk these over with professionals you trust, and rely on your own knowledge of your child, too. Make a checklist of key items. Does your son need to learn to sit still and listen, instead of interrupting constantly or making inappropriate comments? Does your daughter need to learn how to speak distinctly? Does she need help with self-care skills?

16. DO...Be able to back up your requests for special kinds of help with diagnostic reports, observations, and other information from professionals who know your child. If you wish, you may ask to have professionals accompany you to support your point of view. This is your right according to law.

17. DO...Remember - diagnostic reports, important as they are, are not infallible. They don't say all there is to be said about a child. Your most important job is to make sure that the others at the conference never forget that you're talking about a real child - not scores attained on a series of psychological tests. Bring up all the real-life information you feel is relevant to a discussion about your son or daughter's educational needs. In the past, there was far too

much tendency to rely on reports and records, not to look at the child himself. This is your chance to push for this change in perspective.

18. DO...Be wary of any suggestions to place your child (or leave him) in a classroom that has a label. The old approach was to give children "trainable retarded education" or "blind education" or "physically handicapped education" which more often than not meant inferior education, or none at all. That's what the new law is supposed to stop. The program your child gets should be built on services that relate to strengths and abilities, special problems and learning needs...not to his category of disability.

19. DO...Try to understand the issue of "least restrictive environment". The law is based on the right of handicapped children being part of the world, to learn, work and play along side their non handicapped schoolmates. This doesn't mean that every handicapped child belongs in a regular class, but should be given that chance, if, with sufficient aid and understanding, he can hold his own. If a child should spend all his day in a separate class because of his individual needs, he should be given every possible opportunity to join his peers in other school activities. This is an essential part of education.

20. DO...Make sure that your child is not excluded from participating in a regular school program because of architectural barriers. This is against the law. Section 504 states very clearly that school facilities must be made accessible and that special adaptations must be made so that services are really available to all students.

21. DO...Have a very complete understanding of the IEP that is produced. A copy of the final IEP should be given to you in writing. Make sure that the education goals that are agreed on are specific and that they accurately reflect decisions that were made at the meeting.

An IEP should not contain general goals, like: "Maximize child's potential," but should include clearcut objectives that can be measured. One objective, for instance, could be: to be able to identify a specific number of words by sight within a certain period of time. Long term goals such as reading at a first grade level should be included, too - so you know where you're going.

An IEP should also say how much time a child is to spend in the mainstream, either in regular classes or extra-curricular activities. Services to be given should be clearly defined. For instance, if speech therapy is in the IEP, how often will it take place? What kinds of activities will it include? When will it start? How long will it go on? How will progress be charted? If other supportive services, such as transportation or hearing aids are needed, this should be in writing, too.

Review The Final IEP

22. DO...Be firm about things you consider important. Although you don't want to be so rigid that no possible plan could ever get off the ground, you are the main protector of your child's interests. If the proposed program segregates your child in a separate classroom all day, and you are convinced that he should have the chance to make it in a regular school activity (at least part of the day), stick to your guns. If a specific classroom or school has been recommended, visit it - to see if it really meets your child's needs. Art, music, school plays, gym, shop are part of the school day for other kids. Your handicapped child should be included. This will require modifications in the way programs are offered - but it can be done!

23. DO...Ask for a due process if you feel that an essential part of the program is omitted, is harmful to your child, or is truly inappropriate. If the school system is not able to provide the kind of educational program your child must have, it is responsible, by law, for financing an appropriate education in a private facility. This can be a difficult bone of contention, and requires detailed evidence. In all controversies, you must put together documents, reports, letters and other statements (from teachers, doctors, and other specialists who know your child) to support your view. If possible, meet with the school members of the IEP team again to present your side. If you reach a dead end and are unable to convince school officials to change the program or placement, then ask for a due process hearing at this point. While controversial issues are being decided, children must be permitted to remain in their present school setting.

Follow Your Child's Program

24. DO...Get to know the teacher, once your child is placed. Ask when he or she would like to meet with you. Regular conferences are important - to find out how your child is doing, to bring up questions you have, to discuss any possible new efforts at school or at home.

25. DO...Make sure that a formal evaluation of your child's program takes place every year...at the very least. Making sure that a program continues to be appropriate requires vigilant checking and rechecking....to see if school placement is actually encouraging a child's growth.

26. DO...Listen to your child, respect what he is saying. You need to know his reaction to schoolwork, to teachers, to classmates. He may need help getting "Toughened up" in the real school world. If you are worried about how things are going...again, talk to the teacher, or the school counselor or principal, for advice and suggestions. Keep all your lines of communication open.

BUT PLEASE...

27. DON'T...Let other people plan for you. If, for instance, you have reason to think that school people met "behind the scenes" to agree on the IEP, effectively keeping you out of the act, you have grounds to complain loudly. Some school administrators have had nothing but difficult experiences with parents and they freeze at the thought of working with them. (It works the other way around, too. You may have had so many frustrating or intimidating experiences that you don't want to try again. Please do.) You and the school can work together. Don't let the potential for a new creative process die by default.

28. DON'T...Settle for poor or inadequate services. If you find that your child's problems are ignored, that special resource teachers or educational materials don't exist, that your child is deprived of assistance he needs to adjust to a mainstreamed classroom in which he has been placed...take action. Demand changes in keeping with the promise of an appropriate program.

29. DO...Request due process, if your efforts to work with your child's teacher, principal, or school administrators fail. You have a right to request a due process hearing at this point in order to protest your child's placement.

30. DON'T...Forget that, no matter how important every educational service provided to your child may be, he is a young, responsive, growing individual, with human needs to laugh, play, make friends - not a composite of diagnosed needs. The brightness of social success means as much as academic progress (sometimes, it can mean even more). This side of life can be overlooked in conscientious efforts to improve learning skills. Your handicapped child is a person - and the purpose of all these efforts is to help him use his own strengths to become the most fulfilled person he can be. That's why it's so important to give each kid as much chance as possible to join the mainstream and to be part of the fun activities of school.

31. DON'T...Try to do this all alone. Join with other parents in an organization for handicapped individuals, or the PTA, to learn all you can about new federal and state laws, the way your own school system works, how to stick up for your rights. There's so much to do! You're not the only one who needs help. Find your allies - and work together. If teaching programs for handicapped children are below standard, and none of your efforts to bring about improvement have worked, you will be far more effective if you become part of an organized group. You can add strength to a broader effort to implement and strengthen existing laws, to push for increased funding by state legislatures, to awaken the rest of the community to the rights of handicapped children.

* Reprinted courtesy of:

PARENT INFORMATION CENTER
P.O. Box 1422
Concord, New Hampshire 03301

⇨ **Pretest**

Cognitive

1. ________ is/are law(s) protecting the educational rights of all handicapped children.
   ____ a. PL 94-142 and Rule S-1
   ____ b. Section 504 of the Rehabilitation Act
   ____ c. All of the above

2. The law assures all handicapped children the right to
   ____ a. a free and appropriate education.
   ____ b. a 3/4 day educational program.
   ____ c. some special services as speech therapy, physical therapy, and remedial reading.

3. Parents of handicapped children have the right to
   ____ a. counsel, social services, and financial aid.
   ____ b. due process procedures, prior notice of and consent to placement, access to records, and an independent evaluation.
   ____ c. request a physical exam, eye exam, and professional counseling.

4. A parent does have the right to prior notification of a change in their child's educational placement.
   ____ a. true
   ____ b. false

5. A school does not need a parent's consent before a child is identified, evaluated or placed in a special program.
   ____ a. true
   ____ b. false

6. A parent has the right to
   ____ a. obtain an independent educational evaluation of their child and to have the results considered in determining their child's educational program/placement.
   ____ b. examine their child's school records at anytime.
   ____ c. both of the above.

7. A parent has the right to
   ____ a. request that inaccurate or incorrect records be corrected.
   ____ b. include in the records an explanation of their disagreement if a requested change is denied.
   ____ c. both of the above.

8. An individual educational program is
   ____ a. a program planned by the teacher and psychologist.
   ____ b. a document outlining a child's specific educational needs and a program to meet those needs.
   ____ c. a document stating the class the child should be placed in.

9. A case conference committee is designed to
   ____ a. counsel the parents.
   ____ b. inform the parents about a child's testing, evaluation, and class placement.
   ____ c. formulate a child's individual educational plan.

10. At a case conference committee meeting the parent
    ____ a. is not asked to attend.
    ____ b. is in attendance but only as an observer.
    ____ c. voices his/her views about the most appropriate type of services needed by his/her child.

11. The least restrictive environment entitles a handicapped child to
    ____ a. as much social and educational placement with non handicapped children as is appropriate to the needs of that child.
    ____ b. a self contained classroom as far away as possible from the mainstream of the school.
    ____ c. an education in a building totally built to meet the needs of handicapped children located at a distance from other schools in the school corporation.

12. Due process is the parent's right to
    ____ a. withdraw their child from special education program.
    ____ b. sue the school corporation.
    ____ c. a hearing, presided over by an impartial hearing officer, to present their side of a disagreement with the school corporation.

13. A parent should instigate ____________ if they disagree with the school's decision about their child's evaluation, identification, or educational placement.
    ____ a. court proceedings
    ____ b. due process
    ____ c. an investigation

Key: 1.c, 2.a, 3.b, 4.a, 5.b, 6.c, 7.c, 8.b, 9.c, 10.c, 11.a, 12.c, 13.b.

Affective Barometer

Circle the word or words which best represent the intensity of your feelings.

1. All handicapped children have a right to a free and appropriate education.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

2. Parents have the right to prior knowledge of the special educational placement of their child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

3. Parents have the right to give consent before their child is placed in a special educational program.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

4. Parents have the right to examine their child's school records at any time.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

5. A parent has the right to seek an independent evaluation of their handicapped child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

6. An individualized educational program is an important aspect of a handicapped child's education.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

7. A parent should be involved in planning their child's individual educational program.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

8. The least restrictive educational environment is important to the education of a handicapped child.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

9. Due process is a constitutional right guaranteed to parents of handicapped children.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

10. A parent may need to instigate due process proceedings to ensure their handicapped child a free and appropriate education.

--	-	o	+	++
strongly disagree	disagree	neutral	agree	strongly agree

△ Mini Lecture or Presentation

THE LAW AND THE HANDICAPPED CHILD

We have covered so far through this course of study most of the roles you will play as a parent. The last role we are going to discuss is the parent as a lawyer. If you should have a handicapped child, being an advocate for his/her educational rights is an important aspect of parenting. As an advocate you need to be aware of the laws protecting your rights and those of your child. In Indiana there are three laws that insure a handicapped child's right of education. They are

... Rule S-1 - Indiana's State Mandatory Special Education Law.

... Section 504 of the Rehabilitation Act of 1973.

and

... PL 94-142 Education of All Handicapped Children Act of 1975.

Mandatory Special Education means that special education is required by law. It is to be provided by the public schools: "to special children" that are defined in the law and 2) provided as specified by the rules and regulations of the law. Rule S-1 was passed in 1969 and required that schools follow and implement its guidelines by 1973. Since Rule S-1's enactment, the two federal laws mentioned have been passed. These laws have stated guidelines that each state, including Indiana, must follow to receive financial aid.

PL 94-142 says each state must:

1) assure that all handicapped children have available to them a free appropriate public education,
2) assure that the rights of handicapped children and their parents are protected,
3) assist States and localities to provide for the education of handicapped children, and
4) assess and assure the effectiveness of efforts to educate such children.

If the states do not comply to these laws, the federal government will not supply funding. In order to assure that the states are doing what the law intends, each state is required to submit an annual plan to the federal government. This state plan must outline the policies and procedures which insure that the requirements of the law are carried out in every school district of that particular state.

In order that each state can prepare this detailed plan, each local school district must also prepare a detailed plan showing how they will meet the conditions of the law. Both the state and local plan must demonstrate

1) The state will provide all handicapped children with "full educational opportunities" and at least 50% of the federal funds will be given to children who are receiving no education at all. A timetable must be established for the "full services" goal.
2) Policies and procedures will be instituted to safeguard due process rights of parents and children.
3) Handicapped children will be educated with non-handicapped children to the extent possible.
4) Tests and other materials or methods used to evaluate a child's special needs are neither racially nor culturally discriminatory.
5) Information gathered concerning a handicapped child is kept confidential. Parents must be given the opportunity to see relevant school records prior to a hearing.

What does this mean to a Parent of a Handicapped Child?

This law guarantees 1) a free and appropriate education to all handicapped children, 2) that school corporations must follow certain guidelines to assure that each handicapped child receives appropriate services or program, 3) that a parent is given specific rights to assure that their child does receive a free and appropriate education as outlined by the law.

PL 94-142 defines a free and appropriate education as special education and related services which conform with the educational plan agreed upon by the parent and the professionals working with the child and are provided at no expense to the parent.

An educational plan, according to the law, must be an individualized educational program or abbreviated IEP. The IEP is a written document outlining a child's specific educational needs and the program designed to meet those needs. A child's IEP is developed by a case conference committee, after the child has first been determined to need special services. It is the school's responsibility to plan and implement the case conference committee meeting. The committee should include:

... You as a parent.

... A representative of the school, other than the child's teacher, who is knowledgeable in special education and is qualified to teach or supervise the area of special education.

... The child if appropriate.

... The individual(s) who have performed an evaluation of the child or has knowledge about the tests given and the results.

This committee works together to formulate an educational plan that is the most beneficial to the child. The committee must provide

1. A statement of the present level of educational performance.
2. Annual goals for the child and short term objectives that would be achieved before accomplishing the overall goal.
3. A decision as to what services or programs that would be needed to meet these goals and objectives and how much time the child should stay in a regular program.
4. A decision as to when the special services begin and end and an appropriate evaluative procedure to determine whether or not the child met the goals and objectives.

The School's Responsibility

The school must meet certain requirements in conducting the case conference and deciding the most appropriate educational program.

The school district must insure that, at a minimum:

.... any tests administered to a child are in his/her native language, or in a mode of communication she/he can understand (i.e., braille, sign language, etc.), unless it is clearly not feasible to do so;

.... the tests are validated for a specific purpose and used appropriately;

.... tests are conducted by qualified personnel;

.... the child receives tests and other evaluation materials which are designed to assess specific areas of his/her educational needs, and not merely tests which measure his/her general intelligence level;

.... if the child has impaired sensory, manual, or speaking skills, general intelligence or aptitude tests which are administered must accurately reflect his/her aptitude or achievement level, rather than his/her handicapping condition;

.... no single procedure may be used as the only means for determining an appropriate educational program for your child;

.... the evaluation team must include at least one teacher or specialist knowledgeable of your child's suspected disability;

.... the child is evaluated in all areas related to his/her disability; and

.... provide all handicapped children an education in the least restrictive environment. To the maximum extent possible, a child's personal and educational experiences must be with non handicapped children, and must be provided as close to home as possible.

The Parent's Responsibilities as An Advocate

The parent must make sure that the school follows these guidelines in planning and developing an appropriate IEP for their child. A parent has specific rights in four major areas of the law: prior notice/consent; independent evaluations, access to records, and due process procedures. These rights allow a parent to

1. have prior knowledge of any change or initiating of a change in the identification, evaluation, or placement of their child. A parent must give written consent before any preplacement evaluation or initial placement of their child may take place.
2. have their child independently evaluated and expect to have the results considered by the committee.
3. see all of their child's school records at anytime.
4. request inaccurate information in their child's school records be corrected. If the school disagrees with the parent's request, the parent may request a hearing(s). If after the hearing(s) the request is still denied, the parent may place an explanation of their disagreement in their child's permanent record.
5. request due process at any point that they disagree with the school's decision regarding their child's educational program. Due process is part of our constitutional heritage, guaranteeing that you may not be deprived of your right of free choice unless very specific procedures are followed, including a fair

chance for your side to be heard by an impartial person. During a due process hearing, a parent has the right to counsel, present evidence, and call witnesses.

Section 504 of The Rehabilitation Act of 1973

This law mirrors the rights outlined in PL 94-142 excepting two or three new aspects. Let's look at the points outlined and decide which are not covered by PL 94-142.

(Pass out ditto 144. Discuss!!)

Now that we've established that the law insures 1) all handicapped children the right to a free and appropriate education and 2) the protection of the rights of handicapped children and their parents, let's do a simulation and role playing of a case conference committee meeting. Each of you will have the job of functioning as a responsible member of the conference committee and assume one of the following roles: teacher, principal, psychologist, parent, advocate, or doctor. You will be given information that will help you play your role in determining an IEP and placement of the child. As a committee you will need to develop the IEP and will write it on a IEP form which is in the principal's packet. Don't get hung up on technicalities of filling out the form. Do it as you think it should be done!

Instructor: Break the large group into small groups of seven who will remain in their groups throughout the role playing. Assign the roles and pass out the background information, dittos 145 through 174 to appropriate students playing these roles.

The Roles -

Principal *Public School Teacher* *Psychologist*	*The school roles should share information.*
Preschool Teacher *Advocate* *Mother* *Father*	*These roles should share information.*

OK! You all have been assigned a role. Play the role the way you think it should be played. If there is some particular point or information that you feel you need you may make it up as long as it is consistent with the information provided by your background sheet. Each of you have also received some general outline of the responsibility of the person you are playing. You may or may not follow them. But remember if you don't follow the guidelines of the laws, the parents have the right to request due process. Parents, you should be on your toes for inappropriate action on the part of the school. There is an advocate available in your group to assist you. The point of the case conference is to discuss and plan a program to the benefit of the child. You need to work together, but if there are unreconcilable opinions, the parent or the school may request a due process hearing conducted by an impartial hearing officer who listens to both sides and makes a decision. If you come to such an impass, return to your seats until the other committees have been convinced. OK, you have about 15 minutes to look over the roles and background information, then we will start the case conference meeting.

This is the situation!

Jon is a 4 year old boy in a non public preschool program. When he turns 5 in August he will be eligible for a school program. Although Indiana's mandatory law is 6-18 years of age, this school corporation offers programs for non handicapped 5 year olds. Jon is enrolled in a preschool Montessori program and has been since he was 2½ years old.

Jon's Montessori teacher and parents referred him for evaluation by the schools. The school has evaluated him and a case conference has been scheduled.

Instructor: After 15 minutes have the class begin the meetings with the principal as the coordinator. Allot about 30 minutes minimum for this simulation. At the next class period prepare and pass out Do's and Don'ts For Parents ditto 167 through 174. Duplicate enough for each member of the class. Have the students compare the action of the parents in their conference committee with the list. As a total group, have the class compare the results of the different committees. If a due process hearing was called, simulate the setting with you or another class member as the hearing officer.

☐ **Classroom Experience Options**

1. Show a film or film strip to reinforce the concept and content of the law.

   a. Title: The I.E.P. Film
      Time: 25 min. color film
      Content: The Individualized Education Program Film is primarily directed to parents of handicapped children and their concerns and involvement due to PL 94-142. It describes the testing and evaluation proceedings in a local school system and a program planning conference with school officials concerning goals and objectives.
      Available from: 17

   b. Title: A Free Appropriate Public Education For All Handicapped Children
      Time: FI-20 min., FII-20 min., FIII-14 min.
      Content: 3 Film strips and cassettes
      Filmstrip I-Introducing PL 94-142 - 20 min.
      Filmstrip II-Complying with PL 94-142 - 20 min. Appropriate for administrators.
      Filmstrip III-PL 94-142 Works for children - 14 min., designed for parents.
      Available from: 17

2. Discuss the history of educational legislation as outlined in the background material.

3. Contact the National Center for Law and The Handicapped for suggestions of speakers from your locality on the topic of "Parents as Advocate".

   1235 North Eddy Street
   South Bend, Indiana 46617

4. Have a parent that has a handicapped child speak on their experiences as a member of the case conference committee.

5. Have the special education director of the school corporation come speak to the class concerning case conferences and/or I.E.P.

6. Provide selected articles from Amicus. Amicus is available from:

   The National Center for Law
   and The Handicapped
   1235 N. Eddy St.
   South Bend, Indiana 46617

7. Have the students develop a poster or booklet designed to make parents of handicapped children aware of their rights.

Outside Classroom Experience Options

1. Observe a case conference being conducted in your school corporation.
2. Observe a due process hearing.
3. Have students develop and conduct a survey of local parents of handicapped children regarding their knowledge and understanding of their rights.
4. Have the students develop and conduct a survey of local lawyers regarding their knowledge and understanding of law affecting the handicapped.
5. Have the students contact local agencies serving the handicapped to collect pamphlets or brochures they have concerning the legal rights of their clients. Discuss these brochures and their applicability.

Action Checklist

Pass out the Action Checklist prepared from ditto 175 through 177 as a summary to this unit of study. Go over each point to be sure it was covered in the classroom presentation.

As a parent of a growing child I will as Lawyer:

____ Act as an advocate for the rights of my child.

____ Notify the school if my child should require special services or programing.

____ Find out if the schools offer a preschool program for my child if he or she has special needs.

____ Keep a rights file if my child has special needs.

____ Be cognizant of the tests and evaluation given my child.

____ Make sure that testing of my child does not discriminate in any way.

____ Make sure that an evaluation includes more than just an IQ score or a label.

____ Have all test results and evaluations explained.

____ Have an independent evaluation completed if I feel that the school's evaluation is inappropriate or inaccurate.

____ Attend all case conference meetings involving the educational placement or evaluation (IEP) of my child.

____ Keep a file containing my child's records of testing and evaluations for my use at the case conference meeting.

____ Go through my child's school records to be sure they are accurate and up-to-date before the IEP meeting.

____ Attempt to find a trained advocate or experienced parent to assist me during a meeting on my child's individual educational planning.

____ Be an active participant of the case conference committee developing my child's IEP.

____ Make sure that any independent evaluation is considered in the planning of an IEP and placement of my child.

____ Represent my child as an individual and not a test score at the case conference meeting developing my child's IEP.

____ Present my thoughts on what is important for my child to learn during the planning of my child's individual educational program (IEP).

____ Not let my child be placed in a program on the basis of a label only.

____ Insist that my child be placed in the least restrictive environment most appropriate to his/her individual needs.

____ Not allow my child to be excluded from participating in a regular school program because of architectural barriers.

____ Make sure the final IEP contains the decisions made during the case conference committee meeting.

____ Request due process if an essential part of my child's IEP is omitted, harmful to my child, or is truly inappropriate.

____ Follow my child's program to assure that the IEP is followed.

____ Insist that an IEP is developed by the case conference committee and not "behind the scenes".

____ Not settle for poor or inadequate services.

____ Request due process if efforts to work with the schools fail.

____ Request due process if I feel that any of the following rights of my child or parental rights have been abused.

- ____ prior/notice consent
- ____ independent evaluation
- ____ access to records
- ____ free education
- ____ appropriate education
- ____ least restrictive educational environment

____ REQUEST DUE PROCESS IF I FEEL THAT THE SCHOOL'S DECISION IS INAPPROPRIATE REGARDING IDENTIFICATION, EVALUATION, OR PLACEMENT.

⇨ Post Test

Use the same test as for the pretest. Have the students take it in class or as homework. Let them compare their gains.

VI. The Lawyer

Ditto 144

Section 504 of The Rehabilitation Act of 1973.

1. Annual notification of parents of handicapped children's rights to special education services.

2. Implementation of an individualized educational program.

3. A pre-placement evaluation.

4. Evaluation procedures which accurately reflect the student's apptitude or achievement level.

5. Placement procedures which ensure proper documentation of information and involve persons knowledgeable about the child in a placement decision.

6. Mainstreaming in educational programs and other activities.

7. Parent access to school records and confidentiality as to the record's contents.

8. Periodic re-evaluation of handicapped children.

9. Transportation to educational programs.

10. Procedural safeguards and due process procedures which involve parents.

11. Free residential placement (when such placement is necessary to meet educational needs of the handicapped child).

12. Equal opportunity for handicapped students to participate in,

    non-academic services
    recreational programs
    special school groups
      or clubs
    extra curricular activities
    counseling services
    health services
    transportation.

13. Programs, services, and facilities should be accessible to the handicapped (this particularly pertains to architectural barriers).

14. Prohibits rules that limit participation of the handicapped students in educational programs and/or activities such as; denial of auxiliary aids as tape recorder; guide dogs; interpreters; etc.

Ditto 145

Preschool Teacher

Jon is a delightful child. He is always interested and curious about activities in the classroom. He is continuously asking questions. I feel he achieves at a level above the average for his age.

The problem is he is somewhat overactive and is developing some uneveness in his academic abilities. When he first came to our class, the overactivity was a big problem. But in the last few years he has adjusted to our routine, and I've made some changes in the classroom environment. If the class activities seem to be too stimulating for him, Jon and I have found a spot where he can work independently without the stimulation. When he feels capable of handling the situation he comes and joins us. I try to let him know ahead of time of any change or new experience that we might have. If I don't, he becomes very excited, running around the room, asking a million questions. Sometimes this behavior leads to aggressiveness toward the other children and then we really have a confrontation.

Jon's speech is slightly delayed. His sentence patterns are immature for his age and he does have some articulation errors, but I feel those are normal. His math abilities are exceptional. He can add and subtract and has just become interested in our multiplication materials. He can match letters and numbers. But the sequencing of letters to make a word is a real problem for him.

He can put together a fifty piece puzzle, and is exceptional in geography, knowing all the states. His concept of time is poor. I always must warn him when our time is about up.

He shows no interest in a clock, and has absolutely no concept of what it does or what it is for. He is able to manipulate block towers, cylinders, and parquetry squares, but has a great deal of difficulty with a pencil or scissors. Our gym program holds no interest at all for him. This may be because his motor skills are so poor and he realizes it.

Jon is really doing well in our program. I'm quite concerned about him switching to another. He has such difficulty adjusting to new situations. I wish he could stay

Ditto 146

Preschool Teacher (Continued)

with us another year. Maybe they could gradually introduce him to the new class. If he knew that he could rely on being in our class two to three days a week, he would do much better.

Ditto 147

Mother

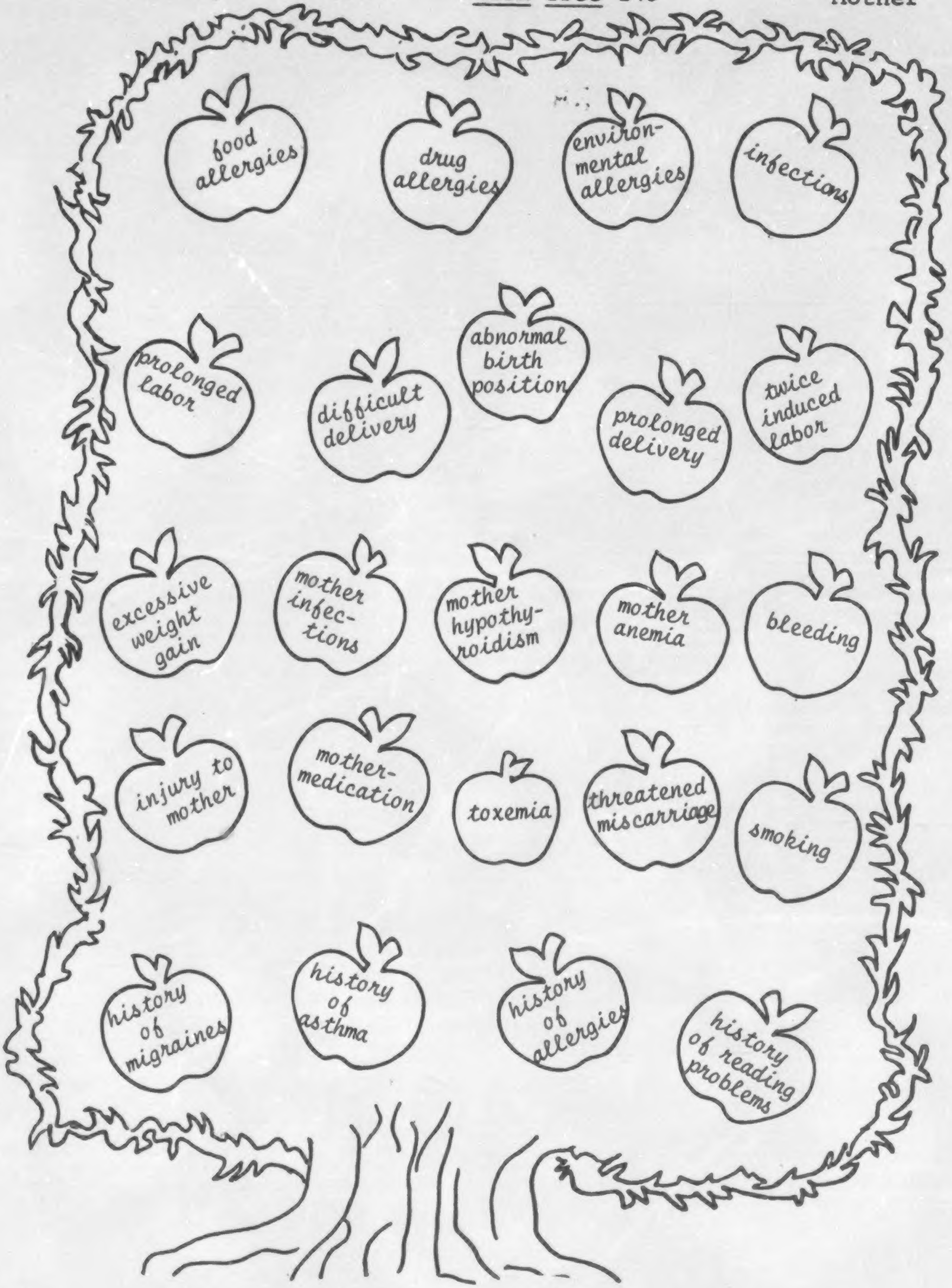
I've been concerned about Jon since he was born. He has had a lot of problems even before he was born. In fact we almost lost him during my fourth month of pregnancy. We were very lucky that our family physician was so alert to his problems. Jon had difficulty during his first months and through our contacting the doctor and his examination, he was diagnosed as having a milk and soy formula allergy. The doctor referred him to a specialist, and at five months he was diagnosed as being an allergic child.

We've had to watch his diet closely. Some foods cause diarrhea or hives and others just make him extremely overactive. He also has drug sensitivities and I just die at the very thought of ear infections, colds, or flu. The doctor has suggested putting him on medication for his overactivity. But with his drug sensitivities I would rather just leave well enough alone.

Jon's teacher said she thought he may be developing some learning problems. I really don't see how he could help not having some problems. I know he is overactive and of course all his ear infections don't help him to learn.

At home Jon's whole day is structured. If we change it, he just can't cope. He sometimes becomes aggressive and hostile towards his brother. I'm really concerned about him going into the public schools. I'm not sure it is the best place for him. At least right now!

VI. The Lawyer Ditto Risk Tree 148 Mother


food allergies
drug allergies
environmental allergies
infections
prolonged labor
difficult delivery
abnormal birth position
prolonged delivery
twice induced labor
excessive weight gain
mother infections
mother hypothyroidism
mother anemia
bleeding
injury to mother
mother-medication
toxemia
threatened miscarriage
smoking
history of migraines
history of asthma
history of allergies
history of reading problems

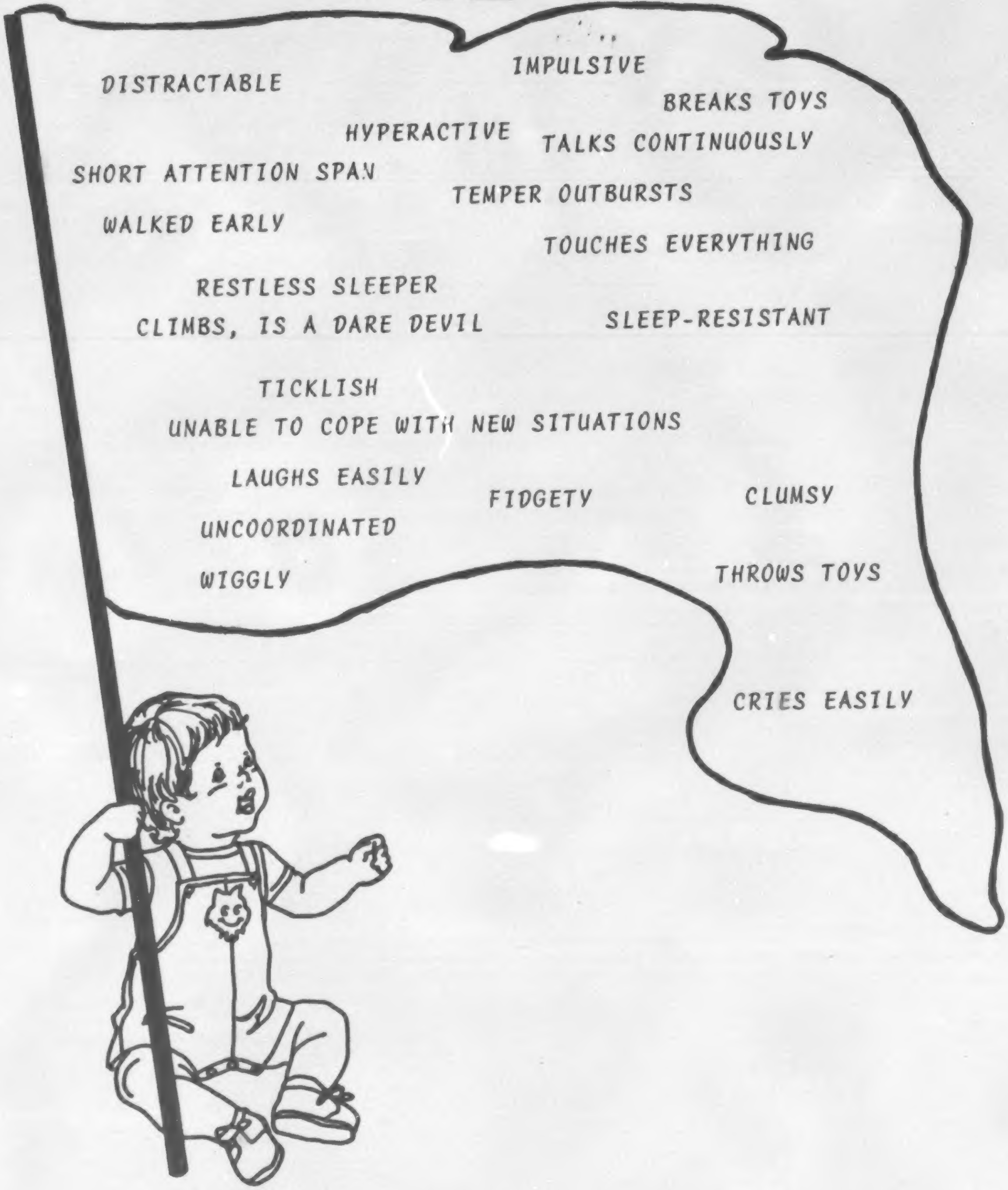
Ditto 149

Father

I don't know why Jill had Jon tested. There's not a thing wrong with him, he is just all boy. Jill worries so much about his allergies, - if that's what they are! Granted the kid really acts funny when he eats the wrong things but maybe its just the spices causing indigestion.

I must admit, Jon does need to have consistency in his life. But that's Jon. As long as we remember that, he is fine...I guess maybe a new class might cause some problems! Do we really have any other alternative?

"Developmental Signals"
displayed
by Jon


DISTRACTABLE
IMPULSIVE
BREAKS TOYS
HYPERACTIVE
TALKS CONTINUOUSLY
SHORT ATTENTION SPAN
TEMPER OUTBURSTS
WALKED EARLY
TOUCHES EVERYTHING
RESTLESS SLEEPER
CLIMBS, IS A DARE DEVIL
SLEEP-RESISTANT
TICKLISH
UNABLE TO COPE WITH NEW SITUATIONS
LAUGHS EASILY
FIDGETY
CLUMSY
UNCOORDINATED
WIGGLY
THROWS TOYS
CRIES EASILY

Ditto 151

Doctor

Jon's pre birth history includes difficult gestation and possibly traumatic labor and delivery. In infancy he was noted to have incompatability with milk and soy based formulas. He was referred to an Allergy Specialist and was diagnosed as allergic at five months. He has had numerous types of reactions to foods and insect bites. He also demonstrates severe drug sensitivities. Because of the allergies, he has had recurrent middle ear infections and several perforations of the tympanic membrane (ear drum).

Current Evaluation

Jon is within normal stature of his age group. His weight is on the low side.

He is allergic.

The tympanic membrane of his right ear appears dull and displays scar tissue.

Blood pressure normal.

Nose, throat, and spine appear normal.

Jon's coordination abilities are below those of his age range.

He is mildly hyperactive.

Recommendations:

I've suggested medication for Jon's mild hyperactivity. The family is reluctant to try, because of Jon's previous unusual reactions to medication. A hearing evaluation should be done to assess the extent of impairment caused by scarring of the tympanic membrane.

Ditto 152

Public School Teacher

Boy, am I glad they asked me to observe Jon. I really don't think he fits in my program. I have 33 children slated for my class in the fall. I just don't think I can handle a hyperactive one with that number of children. I really don't think he is the caliber of child that we put in my class. He really is not too quick.

This is what I observed in the hour he was in my class. He

... didn't respond when I called his name - just like he couldn't hear me. Imagine that!

... was unable to use the scissors.

... painted a picture.

... couldn't write his name.

... was constantly moving.

... was very interested in story time. Was able to remember all the facts and repeated the story better than any other child.

... stumbled over his own feet.

... stumbled on the steps.

... was loud and boisterous.

... was constantly asking questions.

Ditto 153

Public School Guidelines

1. Implementation of an individualized educational program.

2. A pre-placement evaluation.

3. Placement procedures which ensure proper documentation of information and involve persons knowledgeable about the child in a placement decision.

4. Mainstreaming in educational programs and other activities.

5. Parent access to school records and confidentiality as to the record's contents.

6. Transportation to educational programs.

7. Free residential placement (when such placement is necessary to meet educational needs of the handicapped child).

8. Equal opportunity for handicapped students to participate in ...

   ... non-academic services,
   ... recreational programs,
   ... special school groups or clubs,
   ... transportation,
   ... extra curricular activities,
   ... counseling services,
   ... health services.

9. Programs, services, and facilities should be accessible to the handicapped (this particularly pertains to architectural barriers).

10. Prohibits rules that limit participation of the handicapped students in educational programs and/or activities as; denial of auxiliary aids as tape recorder; guide dogs; interpreters; etc.

Ditto 154

Psychologist

Jon was referred by his parents and preschool teacher for testing. Jon will be eligible for our pre-kindergarten program this fall. It appears Jon may have some trouble with visual motor skills and behavior.

During the two half-day testing sessions, I observed some indications of Jon's proposed behavior problem. He appears not able to adjust to new settings easily. In fact the first half-day session was spent familiarizing him with the testing situation and myself. During the second session, he was much more at ease, but the testing needed to be in short segments in order to maintain his attention.

Jon appears to have some learning disabilities. He tested extremely above the average in some areas and way below in others. I would like to retest him in another six months. He really exhibited some gifted abilities in some areas.

I hope I can convince the case conference committee that he needs additional services besides regular pre-kingergarten. If I can't Jon may be headed for real trouble.

Psychologist

Ditto 155

Evaluation

of

Name: Jon Lane
Birthdate: August 1, 197_
Parents: Jill and Karlin Lane

Test Information

Columbia Mental Maturity Scale

IQ - 130

Weschler Intelligence Scale For Children

No IQ obtained; responses were inconsistent; on block design and picture arrangement subtests Jon performed well; on all verbal subtests he showed inattentiveness and at times refused to respond. The examiner abandoned the test until better rapport with Jon can be developed.

Peabody Picture Vocabulary Test

IQ - 121 Raw Score 66

Test was done in short segments. Jon was unable to remain in his seat for longer than 3-4 minute time periods.

Behavioral Information

1) Speech: Articulation appeared immature for his age.

2) Language: Uses some incomplete sentences, vocabulary above average for age; language pattern slightly immature for age.

3) Social: Very short attention span; constant urge to be moving; apprehensiveness demonstrated in new environment; interacted well with examiner.

4) Academic Observations: Matches shapes, most letters and numbers but not words. Rote counts; adds and subtracts simple problems; sequences 5-6 picture cards and is able to relate a story; auditory memory excellent for numbers; visual memory good for numbers, shapes and some letters. Copied a circle and a square, drawing extremely immature for his age.

Ditto 156

Evaluation
(Continued)

General Observations: Was unable to walk on balance beam; difficulty balancing objects on a tray; knocked several things off work table quite accidently; difficulty utilizing a pencil or scissors.

Ditto 157

Schools Must Insure

The school district must insure that, at a minimum:

1. Any tests administered a child are in his/her native language, or in a mode of communication s/he can understand (i.e., braille, sign language, etc.), unless it is clearly not feasible to do so;
2. The tests are validated for a specific purpose and used appropriately;
3. Tests are conducted by qualified personnel;
4. The child receives tests and other evaluation materials which are designed to assess specific areas of his/her educational needs, and not merely tests which measure his/her general intelligence level;
5. If the child has impaired sensory, manual, or speaking skills, general intelligence or aptitude tests which are administered must accurately reflect his/her aptitude or achievement level, rather than his/her handicapping condition;
6. No single procedure may be used as the only means for determining an appropriate educational program for your child;
7. The evaluation team must include at least one teacher or specialist knowledgeable of your child's suspected disability;
8. Your child is evaluated in all areas related to his/her disability; and
9. Provide all handicapped children an education in the least restrictive environment. To the maximum extent possible, a child's personal and educational experiences must be with non handicapped children, and must be provided as close to home as possible.

Ditto 158

The Principal

I am the principal of the Crane Elementary School. I have been alerted to the fact that I am required by law to write an IEP on every special education child in my school. What this means is I must convene a conference committee for each of the EMR students in the school and for the twenty learning disability students. I am confused and a bit doubtful as to the usefulness of this procedure. We're supposed to write down individual educational plans. I feel like we've been doing that for years!!

The kindergarten this year is really going to be over crowded. And now we have a child that may have some problems. Mrs. Smith is the teacher, but she just won't know what to do with a special child. I was hoping we wouldn't encounter this problem. I really don't know the solution. I'm for mainstreaming and the least restrictive environment but there is only so much expertise in any one person.

Maybe we need another teacher with a background in special children at the kindergarten level. I know Jon is not going to be the last special child and there are some other young children that have questionable learning abilities. Well I'm certainly going to conduct the conference committee so I can get input from all areas.

Ditto 159

School Guidelines For Case Conference Committee

This committee works together to formulate an educational plan that is the most beneficial to the child. The committee must provide ...

... a statement of the present level of educational performance.

... annual goals for the child and short term objectives that would be achieved before accomplishing the overall goal.

... a decision as to what services or programs that would be needed to meet these goals and objectives and how much time the child should stay in a regular program.

... a decision as to when the special services begin and end and an appropriate evaluative procedure to determine whether or not the child met the goals and objectives.

INDIVIDUAL EDUCATION PROGRAM

Child's Name____________________ Date Referred to Committee_________

School__________________________

SUMMARY OF PRESENT LEVELS OF PERFORMANCE

PRIORITIZED LONG-TERM GOALS

I. ______________________________

II. ______________________________

III. ______________________________

IV. ______________________________

VI. The Lawyer Ditto 161 Principal

INDIVIDUAL EDUCATION PROGRAM (CONTINUED)

SHORT-TERM OBJECTIVES	SPECIAL EDUCATION & RELATED SERVICES	PERSON RESPONSIBLE	BEGINNING & ENDING DATES	REVIEW DATE

INDIVIDUAL EDUCATION PROGRAM (CONTINUED)

PLACEMENT DECISIONS

PERCENT OF TIME IN REGULAR CLASSROOM

FOR THE COMMITTEE RECOMMENDATIONS FOR SPECIFIC PROCEDURES/TECHNIQUES, MATERIALS, INFORMATION ABOUT LEARNING STYLE, ETC.

CRITERIA FOR EVALUATION OF ANNUAL GOALS

COMMITTEE MEMBERS PRESENT

DATES OF MEETINGS

VI. The Lawyer Ditto 163

Principal
Psychologist
Teacher

INDIVIDUAL PUPIL STUDY

Health and Developmental History

Crane Elementary School
1210 W. Dale Dr.
Smithdale, Indiana

Instructions:

Every effort should be made to make these reports as comprehensive and complete as possible. Please elaborate if an area of possible significance is under discussion.

This information should be secured from one of the parents or guardians by a person appointed by the school administrator. It may also be provided directly by the parents if they have been fully informed by the school regarding the basis for the study and the fact that a referral for individual pupil study is being initiated.

When completed, this form should be returned to the party preparing the referral. When fully prepared, the Health and Developmental History, Request for Individual Pupil Study and signed parent Consent for Individual Pupil Study should be forwarded to the Chief Psychologist.

Thank you.

Form completed by: [✓ Parent] Other ____________ (Name & relationship to child)

I. Identifying Information:

Pupil's Name Jon Lane Birthdate Aug 1, 197- [✓ M] F

School Crane Elementary School Corporation Lewis

Father's Name Karlin Employer Electric Co. - Accountant

Mother's Name Jill Employer Community College - Teacher

Level of Education: Father B.S. - College Mother M.S. - College

Family Status: (Circle) [✓ Married] Separated Divorced
Stepfather Stepmother Foster Parents Other ____________

Sisters and Brothers:

Name Mitchell Age 2 Name ____________ Age ____
Name ____________ Age ____ Name ____________ Age ____

VI. The Lawyer

Ditto 164

Principal
Psychologist
Teacher

INDIVIDUAL PUPIL STUDY
(Continued)

II. Pregnancy, Birth, and Developmental Information:

Child adopted? [✓ No] Yes Adoption Agency __________

This was the mother's (number) 1st pregnancy.

Abnormalities experienced during pregnancy or the birth:

None [✓ See below]

toxemia, bleeding, strep inFection, extreme nausea, anemic, labor induced twice after my labor was ineffective - delivery was very difficult

Place of birth DeKalb Memorial Mother's Age 28 Father's Age 29

Condition of baby at birth: ✓ Normal ___ Premature ___ wks.

___ Other __________

Baby's birth weight 8 lb 12 oz

Explain any medical attention (other than usual) or hospitalization required during the first six months

allergies were diagnosed

Age of walking 10 mo Talking (simple sentences) 24 mo

Age toilet trained (dry regularly day and night) 3 yrs

Has child returned to wetting or soiling at any time? yes

Comments: when he eats Foods that he is allergic to

III. Health Information:

Name of Family Physician Dr. Hipple

Location of Practice augdon

Has the doctor been appraised of the child's difficulties at school? No [✓ Yes]

Doctor's comments about these difficulties Feels Jon is allergic - hyperactive

(NOTE: If parent wants M.D. appraised of results, he must direct the examining psychologist to forward results to M.D. This may be done at the Case Conference meeting. A release form must be signed.)

Approximate date of last physical examination Feb.

VI. The Lawyer

Ditto 165

Principal
Psychologist
Teacher

INDIVIDUAL PUPIL STUDY
(Continued)

Present condition of child's health allergic - hyperactive

Is child presently on medication? [✓ No] Yes Reason:

Has child experienced problems with?

	Hearing	Vision	Speech
	[✓ Y] N	Y [✓ N]	Y N ?
Checked by [✓ physician] or specialist?	[✓ Y] N	Y N	Y N
Problem corrected?	Y [✓ N]	Y N	Y N

Comments Jon has chronic middle ear infections

Has child experienced problems with:

✓ Allergies

___ Eye strain

✓ Eating problems occasionally

___ Excessive crying

___ Dizzy spells

___ Physical growth

✓ High temperature

___ Loss of consciousness

___ Nervousness

___ Headaches

___ Fatigue

___ Other hyperactivity

Comments: Jon is hypersensitive to medications therefore management of Sickness is difficult - Jon seems to react to infection more severely than other children

Has child had any infectious diseases (measles, chickenpox, etc.)? ~~No~~ [✓ Yes]

Kind and age Roseolla

Has child ever had an illness, accident or emotional experience which seemed to delay or retard social, emotional, or physical growth? [✓ No] Yes Explain

What individuals or agencies have dealt with this family?

___ Children's Hospital:

___ Department of Public Welfare:

___ Mental Health:

___ Other: The Learning Tree - Montessori School

VI. The Lawyer

Ditto 166

Principal
Psychologist
Teacher

INDIVIDUAL PUPIL STUDY
(Continued)

IV. Home and School Information:

Does school or [✓ home] consider child to be behavior or discipline problem? No [✓ Yes] Explain particularly iF Jon has eaten Foods he is allergic to - IF we structure his day he seems to do very well

Parent's general impression of child's school experiences:

I'm very pleased with his adjustment and progress at the Learning Tree. The Teacher has done a great job in handling Jon + his behavior irregularities.

Has child ever received special help in reading? [✓ No] Yes

Has child repeated any grades? [✓ No] Yes Which ________

List schools attended:

School The Learning Tree Location Augdon Dates Presently Enrolled

School ________ Location ________ Dates ________

Are there any conditions at home that may influence the behavior and/or achievement of this child at school (i.e., marital problem, sibling problem, etc.)? no

Does the parent feel that there are factors that may help the school better understand the child that have not been covered in this form? ________

Please attach sheets if more space is needed.

NOTE - If information should be gathered from sources other than the child's present school or school district, please complete attached Release Form.

Ditto 167

Do's and Don'ts For Parents

Notify The School About Your Child's Special Need.

1. DO...Find out about preschool services for handicapped children. A great many state laws now call for special programs starting at age three, at least for certain specific disabilities. The principal of the local school (or the district superintendent) can provide information about available programs.

   PL 94-142 provides incentives for education of children with handicaps between ages 3 and 5, and programs are growing.

   Indiana law states that a school corporation may provide a special education program for hearing impaired children six months through two years and special education programs for handicapped children ages 3 to 5.

2. DO...Get in touch with the local superintendent of schools without delay if your child has a handicap and is not in school. A school system is obligated to find all children with disabilities. According to law, no child may be excluded from school because of a handicap. Ask that your child be given an evaluation to find out what kind of program he should have.

   The school must take a careful and thorough look at any child who may need special services - by providing a comprehensive evaluation. Once a child is found eligible for special education, the school must arrange to provide appropriate services; a meeting to prepare an individualized education program must be held within 30 days.

3. DO...Keep your own rights file! Use it to document any steps taken to find appropriate education and related services for your child - from the "suspicion of need" stage on up. The file should include: diagnostic test results and other professional reports, reports from preschool teachers about your child, copies of letters to and from school officials. Keep

copies of state and federal laws and procedures for education of handicapped children and other relevant information. All this is needed to keep track of a child's progress, and to stand up for his rights if the school fails to provide an adequate program.

Have Appropriate Testing Done

4. DO...Make sure your child has a complete physical examination. This is a must. A child who is thought to be retarded may actually have a visual impairment that has never been discovered. Other difficulties may be caused by hidden physical conditions.

5. DO...Remember - calling a child handicapped by this or that condition does not tell about his potential, how he learns best, what he can do.

6. DO...Ask what tests will be given and why. When you sign your name giving permission to have your child tested, make your signature count. Find out what information these tests will yield that can help you and the school know how your child learns, what skills should be strengthened or developed, what problems he has to deal with, what special help he needs. Inform yourself as fully as possible about what these tests are expected to do - before giving your consent to have your child tested.

7. DO...Be sure that testing does not discriminate in any way. If a child speaks Spanish, or any language other than English, tests must be given in the language he knows best. Children who have grown up in minority cultures should not be judged by answers to questions about a world that is totally strange to them. Children who are deaf must have interpreters; all testing must take the nature of handicaps into consideration, so that the picture of a child's ability is a truly fair one.

8. DO...Be sure that the evaluation of your child is complete...that it does not consist only of a single test aimed at pinning an IQ score or any other label on him...but is a well-rounded stock-taking by a team of specialists that tells how your child is doing in all areas of his intellectual, physical and emotional development. This is the only way an appropriate education program can be provided. Information may be gathered in different ways...by talking to people who know your child (including doctors or other profes-

sionals), by meeting with parents, by observing the child and giving him some tests.

9. DO...Insist that the results of testing and evaluation be explained to you in clear, jargon-free terms, and that you have copies for your own file.

If you do not feel that the school's evaluation is fair or accurate, you are permitted by law to get an independent evaluation from other professionals. But - you may end up paying for it. The school system can ask for a due process hearing when its evaluation is challenged. A parent also may request a due process hearing if the independent evaluation does not agree with the schools. The independent evaluation must be considered in decisions about placing your child. It may be used as evidence in a due process hearing.

10. DO...Remember testing will not necessarily mean that your child will be found eligible for special education. If you feel that the school's decision is wrong on this score, you can request a due process hearing at this point.

11. DO...Call for due process, if the school feels the child is or is not eligible for special education and you do.

Attend Case Conference Meetings

12. DO...Be sure to attend all meetings held to plan or check into your child's individualized education program (IEP). The law states clearly that an IEP team must include one or both parents, the child's teacher and a representative of the school system. (Sometimes, one or more other specialists may be there, too. Since this is the first time your child will get special services, someone who was involved in testing your child must be present. Schools are expected to make every effort to get in touch with parents to make sure that they come to IEP meetings - and to arrange times that they can come.

IEPs must be prepared for every child who is eligible for special education. This programming is the key to getting appropriate services. Without an IEP a student should not be placed in a special program. The IEP should be developed during this conference not before.

13. DO...Prepare as well as you can for the case conference meeting. It will design your child's educational program.

Have your child's file ready, with information easily available on all testing and evaluation that has been done - by the school, or privately. Use your right to go through school records to be sure they are accurate and up-to-date. This meeting must be based on a recent and comprehensive evaluation, so check to be absolutely sure this has happened.

14. DO...Bring along a helper to the case conference meeting if you will feel more comfortable or secure. More and more people are getting special training to act as advocates for parents in these new and unfamiliar circumstances. Your helper can rehearse with you ahead of time, explain what will go on and how decisions about the IEP will be reached. Ask members of your local parent organization if they are aware of this kind of help. If you can't find someone trained as an advocate, try to get assistance from another parent who has been through it. Experience is a great teacher, and you can benefit from it.

Help Develop The Individual Educational Plan (IEP)

15. DO...Be as clear as possible in your own mind about what kind of things you believe your child is ready to learn. Talk these over with professionals you trust, and rely on your own knowledge of your child, too. Make a checklist of key items. Does your son need to learn to sit still and listen, instead of interrupting constantly or making inappropriate comments? Does your daughter need to learn how to speak distinctly? Does she need help with self-care skills?

16. DO...Be able to back up your requests for special kinds of help with diagnostic reports, observations, and other information from professionals who know your child. If you wish, you may ask to have professionals accompany you to support your point of view. This is your right according to law.

17. DO...Remember - diagnostic reports, important as they are, are not infallible. They don't say all there is to be said about a child. Your most important job is to make sure that the others at the conference never forget that you're talking about a real child - not scores attained on a series of psychological tests. Bring up all the real-life information you feel is relevant to a discussion about your son or daughter's educational needs. In the past, there was far too

much tendency to rely on reports and records, not to look at the child himself. This is your chance to push for this change in perspective.

18. DO...Be wary of any suggestions to place your child (or leave him) in a classroom that has a label. The old approach was to give children "trainable retarded education" or "blind education" or "physically handicapped education" which more often than not meant inferior education, or none at all. That's what the new law is supposed to stop. The program your child gets should be built on services that relate to strengths and abilities, special problems and learning needs...not to his category of disability.

19. DO...Try to understand the issue of "least restrictive environment". The law is based on the right of handicapped children being part of the world, to learn, work and play along side their non handicapped schoolmates. This doesn't mean that every handicapped child belongs in a regular class, but should be given that chance, if, with sufficient aid and understanding, he can hold his own. If a child should spend all his day in a separate class because of his individual needs, he should be given every possible opportunity to join his peers in other school activities. This is an essential part of education.

20. DO...Make sure that your child is not excluded from participating in a regular school program because of architectural barriers. This is against the law. Section 504 states very clearly that school facilities must be made accessible and that special adaptations must be made so that services are really available to all students.

21. DO...Have a very complete understanding of the IEP that is produced. A copy of the final IEP should be given to you in writing. Make sure that the education goals that are agreed on are specific and that they accurately reflect decisions that were made at the meeting.

An IEP should not contain general goals, like: "Maximize child's potential," but should include clearcut objectives that can be measured. One objective, for instance, could be: to be able to identify a specific number of words by sight within a certain period of time. Long term goals such as reading at a first grade level should be included, too - so you *know where you're going.*

An IEP should also say how much time a child is to spend in the mainstream, either in regular classes or extra-curricular activities. Services to be given should be clearly defined. For instance, if speech therapy is in the IEP, how often will it take place? What kinds of activities will it include? When will it start? How long will it go on? How will progress be charted? If other supportive services, such as transportation or hearing aids are needed, this should be in writing, too.

Review The Final IEP

22. DO...Be firm about things you consider important. Although you don't want to be so rigid that no possible plan could ever get off the ground, you are the main protector of your child's interests. If the proposed program segregates your child in a separate classroom all day, and you are convinced that he should have the chance to make it in a regular school activity (at least part of the day), stick to your guns. If a specific classroom or school has been recommended, visit it - to see if it really meets your child's needs. Art, music, school plays, gym, shop are part of the school day for other kids. Your handicapped child should be included. This will require modifications in the way programs are offered - but it can be done!

23. DO...Ask for a due process if you feel that an essential part of the program is omitted, is harmful to your child, or is truly inappropriate. If the school system is not able to provide the kind of educational program your child must have, it is responsible, by law, for financing an appropriate education in a private facility. This can be a difficult bone of contention, and requires detailed evidence. In all controversies, you must put together documents, reports, letters and other statements (from teachers, doctors, and other specialists who know your child) to support your view. If possible, meet with the school members of the IEP team again to present your side. If you reach a dead end and are unable to convince school officials to change the program or placement, then ask for a due process hearing at this point. While controversial issues are being decided, children must be permitted to remain in their present school setting.

Follow Your Child's Program

24. DO...Get to know the teacher, once your child is placed. Ask when he or she would like to meet with you. Regular conferences are important - to find out how your child is doing, to bring up questions you have, to discuss any possible new efforts at school or at home.

25. DO...Make sure that a formal evaluation of your child's program takes place every year...at the very least. Making sure that a program continues to be appropriate requires vigilant checking and rechecking....to see if school placement is actually encouraging a child's growth.

26. DO...Listen to your child, respect what he is saying. You need to know his reaction to schoolwork, to teachers, to classmates. He may need help getting "Toughened up" in the real school world. If you are worried about how things are going...again, talk to the teacher, or the school counselor or principal, for advice and suggestions. Keep all your lines of communication open.

BUT PLEASE...

27. DON'T...Let other people plan for you. If, for instance, you have reason to think that school people met "behind the scenes" to agree on the IEP, effectively keeping you out of the act, you have grounds to complain loudly. Some school administrators have had nothing but difficult experiences with parents and they freeze at the thought of working with them. (It works the other way around, too. You may have had so many frustrating or intimidating experiences that you don't want to try again. Please do.) You and the school can work together. Don't let the potential for a new creative process die by default.

28. DON'T...Settle for poor or inadequate services. If you find that your child's problems are ignored, that special resource teachers or educational materials don't exist, that your child is deprived of assistance he needs to adjust to a mainstreamed classroom in which he has been placed...take action. Demand changes in keeping with the promise of an appropriate program.

29. DO...Request due process, if your efforts to work with your child's teacher, principal, or school administrators fail. You have a right to request a due process hearing at this point in order to protest your child's placement.

30. DON'T...Forget that, no matter how important every educational service provided to your child may be, he is a young, responsive, growing individual, with human needs to laugh, play, make friends - not a composite of diagnosed needs. The brightness of social success means as much as academic progress (sometimes, it can mean even more). This side of life can be overlooked in conscientious efforts to improve learning skills. Your handicapped child is a person - and the purpose of all these efforts is to help him use his own strengths to become the most fulfilled person he can be. That's why it's so important to give each kid as much chance as possible to join the mainstream and to be part of the fun activities of school.

31. DON'T...Try to do this all alone. Join with other parents in an organization for handicapped individuals, or the PTA, to learn all you can about new federal and state laws, the way your own school system works, how to stick up for your rights. There's so much to do! You're not the only one who needs help. Find your allies - and work together. If teaching programs for handicapped children are below standard, and none of your efforts to bring about improvement have worked, you will be far more effective if you become part of an organized group. You can add strength to a broader effort to implement and strengthen existing laws, to push for increased funding by state legislatures, to awaken the rest of the community to the rights of handicapped children.

* Reprinted courtesy of:

PARENT INFORMATION CENTER
P.O. Box 1422
Concord, New Hampshire 03301

VI. The Lawyer

Ditto 175

The Action Checklist

As a parent of a growing child I will as Lawyer:

____ Act as an advocate for the rights of my child.

____ Notify the school if my child should require special services or programing.

____ Find out if the schools offer a preschool program for my child if he or she has special needs.

____ Keep a rights file if my child has special needs.

____ Be cognizant of the tests and evaluation given my child.

____ Make sure that testing of my child does not discriminate in any way.

____ Make sure that an evaluation includes more than just an IQ score or a label.

____ Have all test results and evaluations explained.

Ditto 176

The Action Checklist
(Continued)

____ Have an independent evaluation completed if I feel that the school's evaluation is inappropriate or inaccurate.

____ Attend all case conference meetings involving the educational placement or evaluation (IEP) of my child.

____ Keep a file containing my child's records of testing and evaluations for my use at the case conference meeting.

____ Go through my child's school records to be sure they are accurate and up-to-date before the IEP meeting.

____ Attempt to find a trained advocate or experienced parent to assist me during a meeting on my child's individual educational planning.

____ Be an active participant of the case conference committee developing my child's IEP.

____ Make sure that any independent evaluation is considered in the planning of an IEP and placement of my child.

____ Represent my child as an individual and not as a test score at the case conference meeting developing my child's IEP.

____ Present my thoughts on what is important for my child to learn during the planning of my child's individual educational program (IEP).

____ Not let my child be placed in a program on the basis of a label only.

____ Insist that my child be placed in the least restrictive environment most appropriate to his/her individual needs.

____ Not allow my child to be excluded from participating in a regular school program because of architectural barriers.

____ Make sure the final IEP contains the decisions made during the case conference committee meeting.

VI. The Lawyer

Ditto 177

The Action Checklist
(Continued)

____ Request due process if an essential part of my child's IEP is omitted, harmful to my child, or is truly inappropriate.

____ Follow my child's program to assure that the IEP is followed.

____ Insist that an IEP is developed by the case conference committee and not "behind the scenes".

____ Not settle for poor or inadequate services.

____ Request due process if efforts to work with the schools fail.

____ Request due process if I feel that any of the following rights of my child or parental rights have been abused.

    ____ prior/notice consent
    ____ independent evaluation
    ____ access to records
    ____ free education
    ____ appropriate education
    ____ least restrictive educational environment

____ REQUEST DUE PROCESS IF I FEEL THAT THE SCHOOLS DECISION IS INAPPROPRIATE REGARDING IDENTIFICATION, EVALUATION, OR PLACEMENT.

○ ○ ○ Bibliography

Amicus, Vol. 2, No. 3, April, 1977. National Center For Law and the Handicapped, Inc., South Bend, Indiana.

Amicus, Vol. 2, No. 4, June, 1977, National Center For Law and the Handicapped, Inc., South Bend, Indiana.

Barbacovi, Don. "Education for All Handicapped Children Act P.O. 94-142." AASA Legislative Intern.

"Common Sense." Closer Look, December, 1978. A Project of the Parent's Campaign for Handicapped Children and Youth.

Daly, Margaret. "Schools: What Are Your Legal Rights?" Better Homes and Gardens, April, 1978.

"Developing Your Child's Individualized Education Program." Parent Information Center, P.O. Box 1422, Concord, New Hampshire 03301

The Education For All Handicapped Children Act, Public Law No. 94-142, Rules and Regulations. August 23, 1977.

Labeling the Children, ADM 78-466, from: National Institute of Mental Health, 5600 Fishers Lane, Rockville, Maryland 20857.

The Laws Brochure, Parent Information Center, P.O. Box 142, Concord, New Hampshire 103301.

"PL 94-42: What Does It Mean?" Closer Look, A Project of the Parent's Campaign for Handicapped Children and Youth, Box 1492, Washington, D.C. 20013

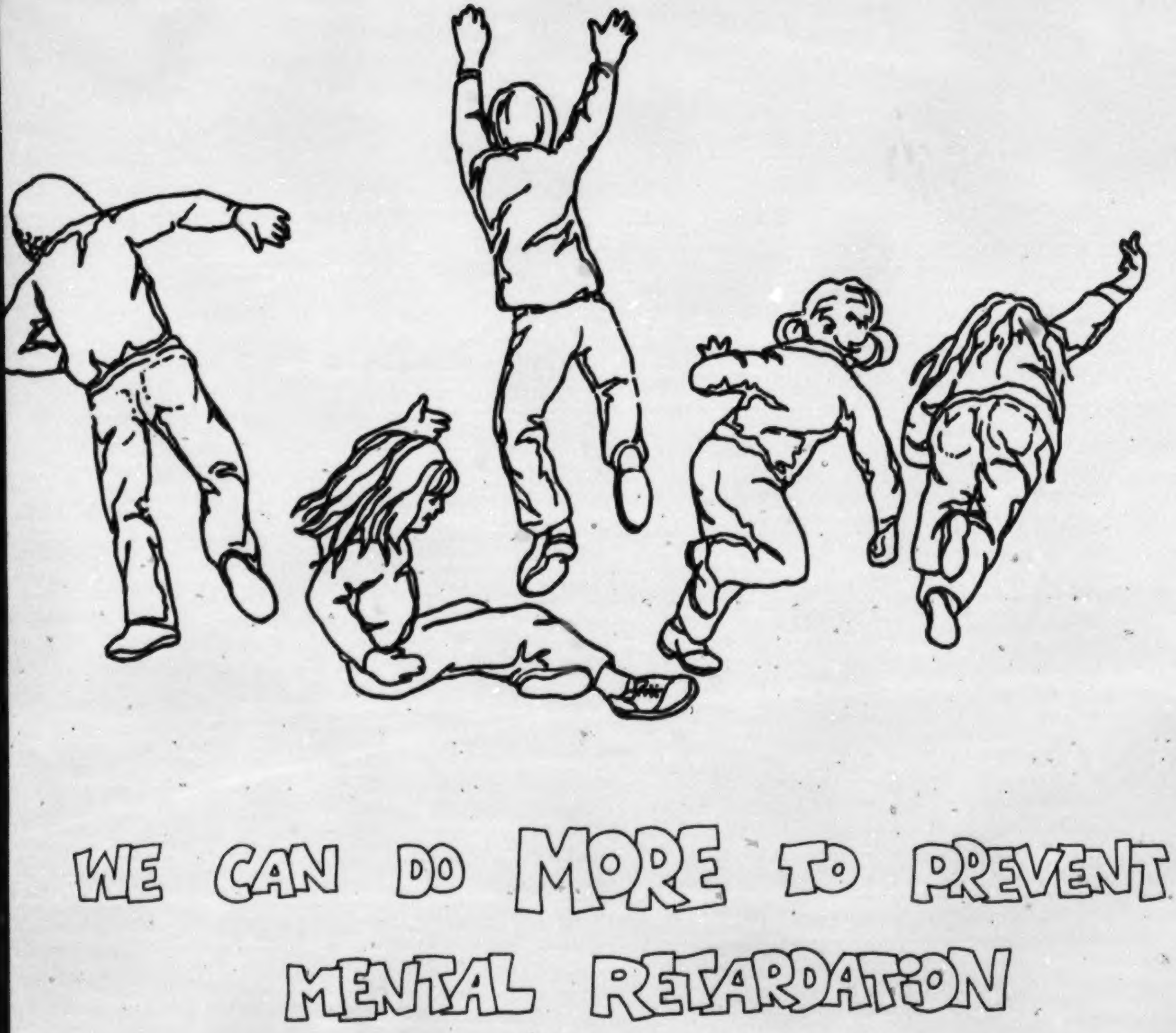
"Planning Your Child's Education: You Belong on the Team! Do's and Don'ts For Parents." Parent Information Center, P.O. Box 1422, Concord, New Hampshire 03301.

Public Policy and The Education of Exceptional Children. Edited by Frederick J. Weintraub, Alan Abeson, Joseph Ballard, Martin L. Lavor. Council for Exceptional Children, 1976.

Rule S-1, Rules, Regulations and Policies, August, 1978.

Tracy, Michael I., Spencer Gibbon, Fred W. Kladder, Niles Daggy. Case Conference A Stimulation and Source Book, Psychology Assoc., 1974.

Word, S. A. "Components of a Child Advocacy Program: Children Today." 1:38 March-April, 1972.


WE CAN DO MORE TO PREVENT
MENTAL RETARDATION